

UNIV. OF
TORONTO
LIBRARY



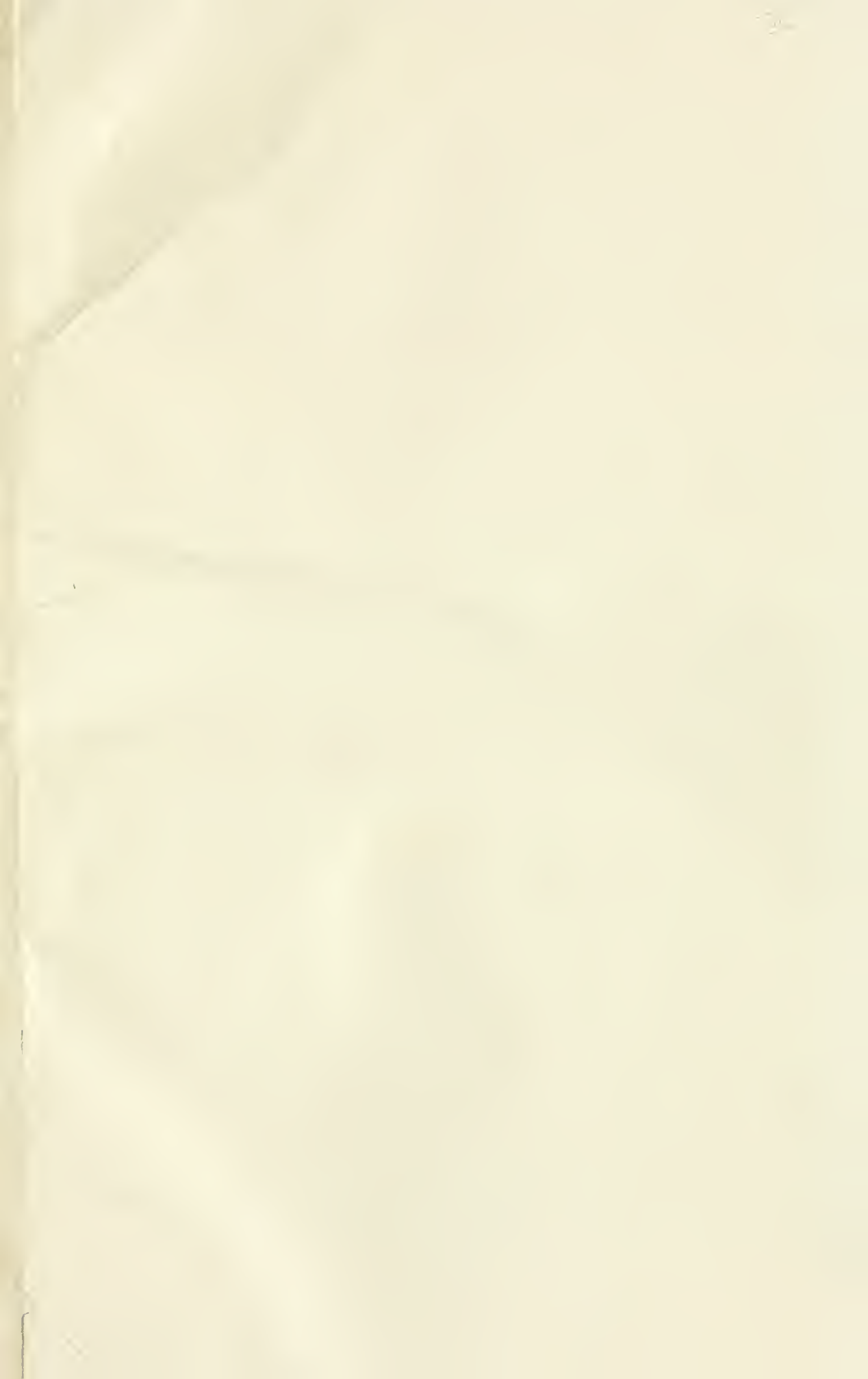
Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

CANADIAN ALPINE JOURNAL

PUBLISHED BY THE
ALPINE CLUB OF CANADA

1909

Printed by the Herald-Western Co., Limited, Calgary, Alberta.





W. D. Wilcox, Photo.

MT. ASSINIBOINE FROM THE NORTH.
Photographed at Altitude of 7500 Feet

THE ALPINE CLUB OF CANADA

OFFICERS FOR 1908-1910.

Patron

SIR SANDFORD FLEMING, K.C.M.G., Ottawa, Ont.

President

ARTHUR O. WHEELER, F.R.G.S., Calgary, Alta.

Vice-Presidents

JOHN D. PATTERSON, Woodstock, Ont.

M. P. BRIDGLAND, Calgary, Alta.

Hon. Secretary

MRS. H. J. PARKER, 160 Furby St., Winnipeg, Man.

Executive Secretary

S. H. MITCHELL, Box 624, Calgary, Alta.

Hon. Treasurer

C. W. ROWLEY, Drawer 1314, Calgary, Alta.

Librarian

MISS JEAN PARKER, Winnipeg, Man.

Advisers

D. H. LAIRD, Winnipeg, Man.

STANLEY L. JONES, Calgary, Alta.

FRANK YEIGH, Toronto, Ont.

Applicants for membership must be proposed by three Active members.

Application for Active membership must be accompanied by a statement of qualification, duly attested.

Graduating members must qualify within two years of date of election.

All subscriptions are payable on 1st January in each year.

CANADIAN ALPINE JOURNAL

The Publishing Committee is not responsible for statements made by contributors to the Canadian Alpine Journal.

CONTENTS—VOLUME II, No. 1

MOUNTAINEERING SECTION

- Mount Robson. By Rev. G. B. Kinney
An Early Attempt to Climb Mt. Assiniboine. By Walter D. Wilcox, F.R.G.S.
The Second Ascent of Mount Tupper. By Jean Parker
Ascent of Mt. Tupper. By Wolfgang Koehler
Beyond the Asulkan. By Professor W. D. Holway
How to Reach Mt. Sir Sandford. By P. A. Carson
Over the Cornice of Asulkan Snow Dome. By C. H. Mitchell

SCIENTIFIC SECTION.

- Modern Glaciers. By William S. Vaux, Jr.
Structures in the Vicinity of Rogers Pass. By E. M. Burwash
Mountain Climbing for Women. By Mary E. Crawford, M.D.
Observations of Glaciers. By Professor Harry Fielding Reid

Glacier Observations, 1907-1908.

- Motion of the Yoho Glacier. By Arthur O. Wheeler, F.R.G.S.

Botanical Notes.

- Our Alpine Flora. By B. R. Atkins

MISCELLANEOUS SECTION.

- A Note on Tyndall's Alpine Books. By E. P.
Rogers Pass Camp. By S. H. Mitchell

CONTENTS—*Continued*

In Memoriam.

William S. Vaux, Jr. Biographical Sketch by George Vaux, Jr.	124
Lookin' Back. Poem by Moira O'Neill (From "Songs of the Glens of Antrim")	128

Alpine Club Notes.

(Editorial)

An Act of Heroism	129
An Attempt on Mt. Sir Sandford	132
New Route Up Mt. Sir Donald	134
Independent Mountaineering	136
Mountaineering Club of Revelstoke	139
Climbs of Importance Made in 1908	140

Reviews.

The Rockies of Canada. Walter Dwight Wilcox. (Revised Edition, Putnam's). By E. P.	142
--------------------------------------------------------------------------------------------	-----

OFFICIAL SECTION.

Report of Hon. Secretary	145
Report of Librarian	149
Report of 1908 Camp	152
Report of Chief Mountaineer	154
Expeditions	158
The Accident on Mt. Avalanche	159
Statement of Treasurer	163

Copies of the Canadian Alpine Journal, Volume I., Nos. 1 and 2, and of Volume II., No. 1, can be had on application to the following officers of the Executive:

A. O. Wheeler, President, Box 624, Calgary, Alberta.

Mrs. H. J. Parker, Hon. Secretary, 160 Furby street, Winnipeg, Manitoba.

S. H. Mitchell, Executive Secretary, Box 624, Calgary, Alberta.

PRICE ONE DOLLAR, POST PAID.

All applications for copies must be accompanied by money order or postal note payable at par in Canada. Cheques not accepted.

By furnishing the address you can have copies sent to friends.



CANADIAN ALPINE JOURNAL

PUBLISHED BY
Vol. II THE ALPINE CLUB OF CANADA No. 1

MOUNTAINEERING SECTION.

MOUNT ROBSON.

BY THE REV. G. B. KINNEY.

Near the end of July, 1907, our pack train of ten horses left Morley, Alberta, for Laggan, which was our real starting point.

The party consisted of Dr. A. P. Coleman, Geologist of the University of Toronto, his brother, L. Q. Coleman, of Morley, Alberta, myself, and a cook; all active, original members of the Alpine Club of Canada, excepting the latter. Mount Robson, the highest and grandest of the Canadian Rockies, was our goal.

For over a month we followed the trail of the wild through the valleys of the Pipestone, Siffleur, Saskatchewan, Sunwapta, Athabasca, Miette and Fraser, crossing the Pipestone, Wilcox and Yellowhead passes. Reaching the mouth of the Grand Forks of the Fraser,

we had to chop our way through fallen timber and forest primeval till we camped near the base of the mountain. The hardships of our trip in had delayed us two weeks longer than we had thought.

The day after reaching the mountain we divided the party and spent one day in exploring to find the best way to the peak; then, with five days' provisions on our backs, leaving the cook to look after the horses, we set out to capture Mount Robson. On the evening of the second day, wet and cold, we made a tree-line camp in a snow-storm. Next day it was storming harder than ever, deep snow lay all around, and, much to our sorrow, we were compelled to give up the attempt. It had been storming more or less for the previous week and our time limit had long expired, so instead of being able to wait for fine weather, we had to abandon the chief object of our expedition, and we returned by way of Edmonton.

The next year we three met by appointment in Edmonton, where, on the thirty-first day of July, 1908, we were again in shape for our attack on Mount Robson. This time John Yates, the famous packer of Lake St. Annes, had us in charge. By August 28th our light pack-train of eight horses had made such rapid time that we were able to camp near the foot of the east side of the mountain. Two days later, August 30th, our permanent camp was made at the foot of a mighty glacier we found lying there.

For nineteen days expedition after expedition was made to capture the peak of Mount Robson; and for nineteen days storms and blizzards of snow frustrated our every attempt. We explored and photographed and mapped the whole region for miles around. We captured three virgin peaks. On the east, however, the fallen snows are so protected that they rest on the mountain from base to summit, giving birth to the fine Robson Glacier, six or seven miles in length.



Rev. G. B. Kinney. Photo.

ROBSON GLACIER

Six miles in length. The watershed between Alberta and British Columbia lies up its centre.



Rev. G. B. Kinney. Photo.

BERG LAKE AT FOOT OF MT. ROBSON.

Named by Mr. Kinney.

For hours we scrambled up this river of ice, amid its *séracs* and crevasses, till we came to the real climb itself. At one time, the heaped-up snows of ages had packed that east side of the mountain to an enormous depth, completely burying those awesome walls of rock, and offering a gradual slope of 45 degrees. But a few years ago the whole mass, for thousands of feet up, had taken a sudden slide of a few yards, and in that fearful tumble completely ruined the continuity of its beautiful slope. Gigantic cliffs of clear blue ice, each rising sheer for hundreds of feet, are now ranked in line one above another to the very skies. Great yawning crevasses, hundreds of feet deep, scar and chasm the whole mass in every direction, while huge chunks of crystal, as large as cathedrals, lie thickly strewn on every hand.

All day long we mushed through the soft snows, or cut our way up these walls of ice. The day was perfect, but we had started several hours too late and the soft snow was too much for us. Reaching an altitude of 10,500 feet by 2 p.m., we concluded to turn back, as it would be impossible to get to the peak that day. We reached our camp in safety after spending twelve and a half hours of hard work on ice and snow. Realizing our need of a higher starting point, the next afternoon we packed our blankets up the glacier and made our camp high on a *medial moraine*. But a great storm of rain wet us through that night and drove us back to our previous camp. Two days later the weather cleared again and we made our second camp high up the glacier, but the next morning brought a raging blizzard which drove us back to our permanent camp.

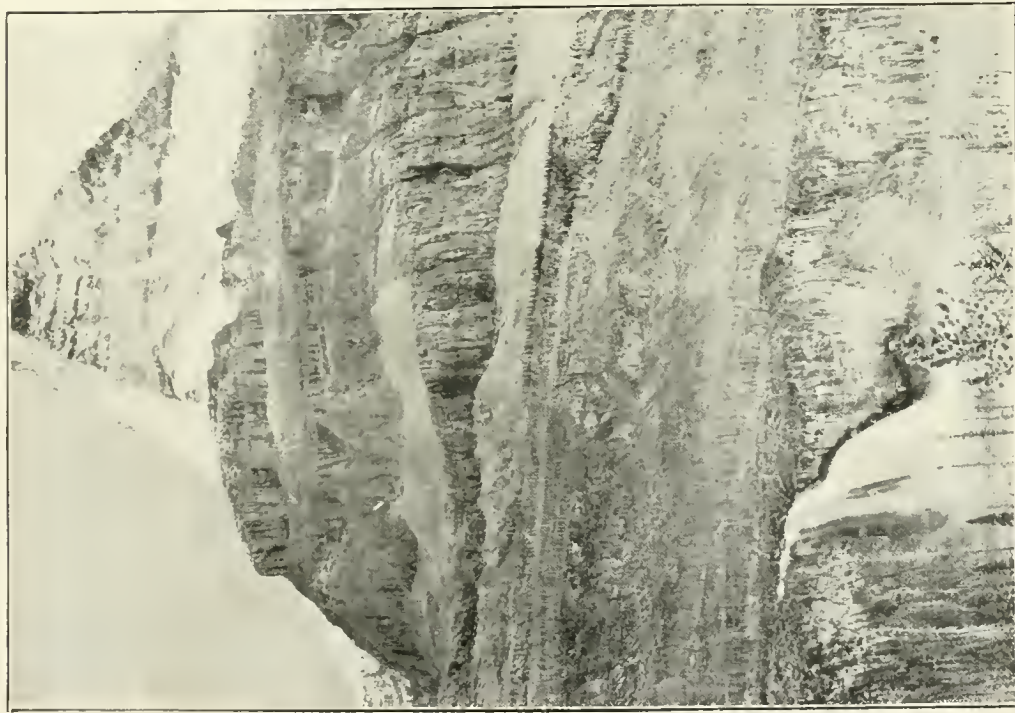
Our time limit had now about expired. It was too great a disappointment to fail again as we had last year, so I resolved, with the consent of our party, to try the steeper rock cliffs of the north side. The storm of the morning continued unabated all day, but by four p.m. I had said good-bye to my companions and alone started

off in the storm to make my high camp. I crossed the gravel bed of the Robson Divide, then scrambled for another mile over the great rocks that strewed the shores of Berg Lake. The short day was nearly done by the time I had passed over the rock-strewn floor of the valley below the lake and bridged its turbulent river; then, for more than two thousand feet, I packed my load of blankets and instruments to a shelf on the cliffs, in mid air. I spent an uncomfortable and restless night on a bed of snow, for I was high above tree-line, and the cold wind found me even through my heavy blankets.

By the first light of dawn I was storming the heights. For thousands of feet, the great rock towered overhead, fringed and fretted with dripping icicles that hung in masses from the over-hanging cliffs, sometimes as much as fifty feet in length. Narrow slopes of shale, at the foot of each wall, were as difficult to traverse as the cliffs themselves, for I had to plough knee-deep through freshly-fallen snow.

I followed narrow snow-covered ledges that dwindled sometimes to but a few inches in width, while ever overhead hung those threatening lance-like icicles dripping their cold water upon me, for the warm sunshine now added these to other dangers. Ever and anon, with a report like a rifle, a chunk would break off from above and stab viciously into the narrow ledge near me, or vanish with a swift swish of flight into the silence of the gulf below. The steep, narrow chimneys in some places were so full of soft snow that I would wallow nearly shoulder-deep before getting a solid foot-hold, and at other times I frequently had to shovel a way through overhanging snow.

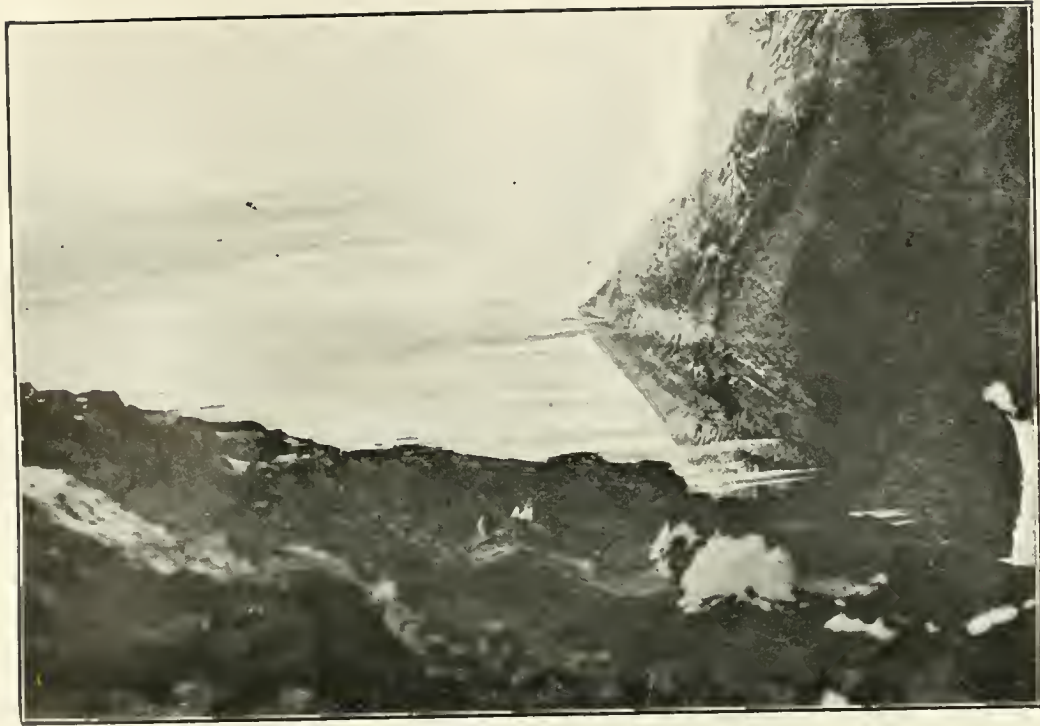
In one of the cliffs my path narrowed to a mere perpendicular crack in the wall. Up this I squeezed a way for a hundred feet, only to find a rock weighing about twenty-five pounds had lodged directly over head and held in check a small avalanche of stones and snow.



Rev. G. B. Kinney, Photo.

NORTH SHOULDER OF MT. ROBSON.

The Cliffs up which Mr. Kinney climbed to top of highest Bluff on extreme right.



Rev. G. B. Kinney, Photo.

LANCER-LIKE ICICLES; FIFTY FEET LONG.

Mr. Kinney's Footsteps may be seen in Snow on little Shelf at Base of Cliff.

With great care I removed the smaller stones, one by one; then bracing myself, I loosened the larger one and let it slip down over my back into the great stillness below. By ten-thirty the last of those cliffs, that had been deemed impossible, had been climbed, and I stood on the summit of the great north shoulder at nearly ten thousand feet altitude.

The day had begun fine and I had taken some splendid photographs, but now a wrack of clouds was already burying the neighboring peaks on a level with me or below, and, when I swung round the north shoulder to the west side, I met a screaming gale. It was beyond question the fiercest wind I ever met. Three different occasions while crossing a long, exposed shale slope, it literally blew me off my feet and tumbled me over; while there were times when I could not force my way against it a single step. I followed this slope around to the west for nearly a mile, then for over an hour waited in the lee of a cliff, hoping the storm would pass, but, instead of subsiding, it added the lash of snow to its fury, and whipped around the jutting crags in a driving white spray. I then worked my way up protected gulleys and left cliff on cliff behind. But the increased force of the storm brought an evening that completely conquered me. I had climbed above the soft, loose snows of the lower levels and now had dry, solid footing. All the big cliffs had been passed, and I had only the smaller ramparts of the upper slope of the western side to conquer. The Fraser Valley swept in brief glimpses before me, and I was at least over seven thousand feet above the Grand Forks river below. The cliffs were so perpendicular that I was forced to follow the draws, and it was there that the enemy lurked. There were no big glaciers above or walls of ice to topple masses of débris upon me as on the east side, but in that blinding blizzard each and every *couloir* became

a foaming cataract of hissing snow. At first it came in little dribbles, and cliff on cliff was left behind, but soon I was wading knee-deep in rushing torrents of dry, pulverized snow. There was no escaping it. I struggled on till I was over 10,500 feet altitude by the aneroid, but these torrents of snow were becoming avalanches, and to be swept off one's feet meant certain death. The wind and snow were too much for me. I would like to have made a camp there, in some sheltered nook, but I had promised my friends that I would be back that day, so with disappointed hopes I started on a difficult descent. At the first opportunity, at about the 10,000 ft. level, I built a cairn of stones and deposited the little message bottle I had hoped to leave at the peak.

I made rapid time returning, and glissaded the whole length of a two-thousand foot snow-slope. Leaving the snow-storms of winter above, I plunged through the clouds and found it raining hard. The rain had played havoc with a huge glacier in a hanging valley opposite. Just as I got below the clouds I was startled by a fearful explosion, then the whole face of the glacier crumpled up, plunged over the cliffs and swept into the valley. It took ten minutes by my watch before the ice boulders of the front came to rest in the bottom. I have watched Lefroy and Temple and other mighty peaks send crashing ice-falls into their peaceful valleys; I have seen great avalanches of snow plunge and billow down the mighty sides of Sir Donald, racing each other two and three at a time, as they eat up the forests in their paths, and stop all traffic on the C. P. R. for nearly a week; but the hurtling masses of that mountain of falling ice were simply appalling, and far beyond all my previous experience.

I had much difficulty in getting below the cliffs, but finally reached my cache of blankets on the ledge and hurried to the valley below. It was after dark

before I saw the light of our camp fire through the storm; and oh! the hot stew of goat meat was great, after over thirty hours with nothing but cold lunches.

The next morning was so fine that instead of packing our ponies for our home trip as was planned, we resolved to have one more try at Mount Robson and then get home by forced marches. So that afternoon found us again in our temporary camp high up Robson Glacier, and the next day, Sept. 12th, dawned with the sky full of stars above glistening peaks.

Everything pointed to success that morning as we started for our final climb. The snow was hard and frosty and the footing proved so good that by 7 a.m. we had left behind the *séracs* of the glacier and had reached an altitude of over 10,000 ft. Some few years previously great cliffs of ice had toppled over the edge of the gulf and made chaotic our pathway to the summit. Now we found that where we had toiled so hard a few days ago below the solid blue walls, an avalanche had swept away our path and buried our trail beneath a million tons of ice. Other broken and over-reaching masses hung suspended above our heads. Just as we reached the foot of the first cliff, a great mass let loose from above, missed us by scarce fifty feet. For one awful moment we held our breath; then we forgot the hurtling slides, although they continued their roar throughout the day. For an hour we cut steps up a wall of ice; then we chisled a path around an overhanging cliff and sunk knee-deep in the now softened snows of its crest. For four hours and a half we literally hung on the face of that wall of ice, by finger and toe-holes only; and in all that time we gained not more than five hundred feet. Here, amid the wreck of a snow-white world we ate our lunch, and then for half an hour followed a chasm, crossed its frail snow-bridge, and swarmed up a lofty hillock of snow. Here chaos reigned supreme, for this was where the big snow-field had broken off. Above frowned walls of ice, fully

a thousand feet high, while at their feet the snow but imperfectly covered the jumble of icebergs and their treacherous crevasses. We wormed our way amid these ruins and crossed great crevasses on little snow bridges; then, amid the drip of icicles, chopped our way up intervening cliffs till a rampart of ice walled out the view to the peak. A narrow slope of snow hung down those walls and shoved out a cornice far over a mighty bergschrund at our feet. The snow hung down to the level of our shoulders. I cut a couple of steps in the hard edge above my head; then striking my axe into it as high as I could reach, I literally pulled myself up till I could place my feet in those notches. Then I cut more steps till I was the full length of the rope above the crevasse. Anchoring myself there, I waited till Dr. Coleman had footing in the snow, and then cut more steps. Thus, one at a time, the three of us gained the slope. From there we followed the steep winding valleys of snow, up almost inaccessible grades, crossed more crevasses and climbed other cliffs, till at last our rough boots ploughed the white, dry snow of the crest of the highest cliff, and but a narrow field separated us from the peak of the mountain itself. We had reached an altitude of 11,700 ft., and it was 4 o'clock p.m.

The peak rose "stern and steep" for two thousand feet or more above us, but it offered a possible though difficult slope of snow clear to the summit. After eating a lunch and burying a bottle containing our names in the snow, we started again, but a huge bergschrund separated us from the upper snows and, when we approached it, the whole field on which we stood gave a sudden lurch and settled a few inches, while masses of snow bridges fell into the widened crevasse. We could, by making a wide *détour*, get around this great crack, but it was decided that we had better give up the attempt, so we started back for camp.



Rev. G. B. Kinney, Photo.

WALLS OF ICE, A THOUSAND FEET HIGH



Rev. G. B. Kinney, Photo.

"FOR HOURS WE HUNG ON THE WALL OF ICE"

The downward trip was more or less uneventful. We glissaded the safer slopes and carefully retraced our line of steps cut in the cliffs. Sometimes the drip of icicles had filled the notches with ice, in other places the avalanche had swept away our pathway; but gradually we left behind the cliffs and snow-bridges and glided swiftly to the glacier below. It was scarcely dark by the time we reached our little camp. We had spent more than fourteen hours amid the fearful glories of that splendid mountain.

In fifteen days we were again in Edmonton and the joys and dangers of our desperate climb are now but happy memories.

EDITORIAL NOTE.

The strong feature of the foregoing narrative of the series of attempts made by Dr. A. P. Coleman, L. Q. Coleman and the Rev. G. B. Kinney, during two successive years, to reach the summit of Mount Robson, is the plucky and desperate climb made by Mr. Kinney alone, when one night was spent on the mountain.

It will be noted that Mr. Kinney states he would have spent a second night but for a promise to his companions to return. The succeeding day was fine, and, had he done so, he would undoubtedly have reached the summit and have made the first ascent of this noble peak, a conquest he richly deserved.

All honor is due to the party for its magnificent efforts and, in extending our sympathy to those concerned for a lost fight, against adverse weather conditions, we sincerely hope that Mr. Kinney may be successful in his next attempt.

AN EARLY ATTEMPT TO CLIMB MT. ASSINIBOINE.

BY WALTER D. WILCOX.

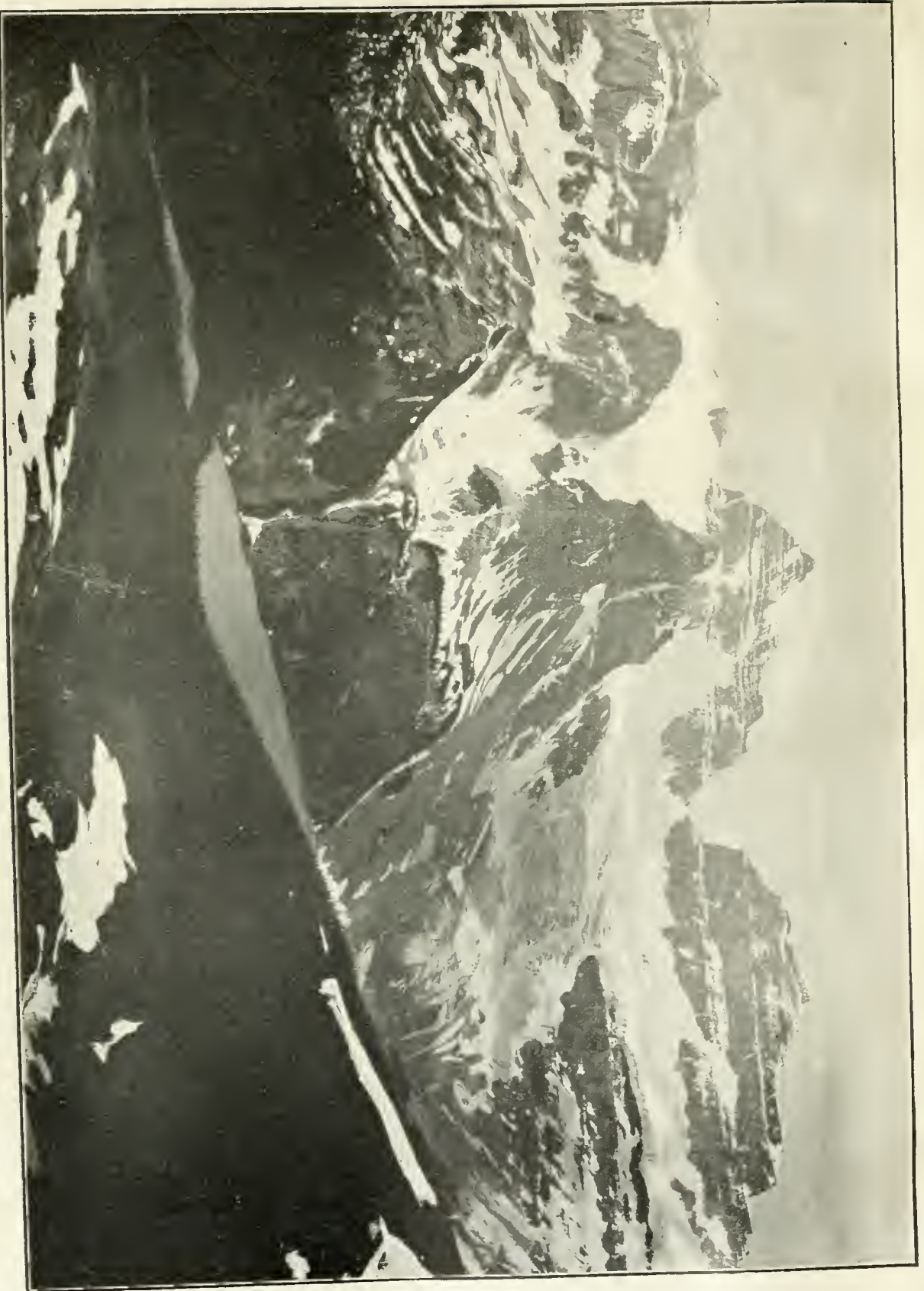
On July 12th, 1895, amid the soft glow of a setting sun, I reached the summit of a barren pass, surrounded by everlasting snow, and looked eastward into a deep, forested valley, and southward over strange snow-fields and mountains. The distant peaks were indistinct in the purplish haze of forest fire smoke, and there was a silence of a perfect calm, that silence only found in the mountains high above tree-line. Whether the white man had ever stood here before and looked upon this scene, I knew not, but the mountains were marvellously impressive in their solitude. As the lengthening shadows crept over the rocks, and ice needles began to shoot across the pools, I remembered that it was many miles to camp, and regretfully bent my steps in retreat, but not without a last lingering look at a sharp, wedge-shaped peak, to the south, rising above snow-fields and crevassed glaciers and then falling away into a great wall of rock that I knew culminated a few miles northwards in Mt. Assiniboine.

After nearly a week of marching we had, that very day, enjoyed our first view of the wonderful mountain and our camp was now located at its northern base. The account of my experience, round the evening camp fire, excited my friends, and our plans were made forthwith to spend the following day in exploration. The next morning dawned clear and cold and a change of wind had swept away every trace of smoke and left an azure sky. At an early hour, Barrett, Porter and I were on foot, with lunches and cameras, and after skirting the

W. D. H. H. H. Photo.

SOUTHERN SPIRES OF MT. ASSINIBOINE FROM NORTH-EAST.

Photographed at Altitude about 9000 feet.



ice-berg filled lake at the foot of Assiniboine, turned eastward and began to ascend a broad, open valley, full of small lakes and running streams, interrupted here and there by water-falls and miniature canyons, beautified by clumps of larches, and hemmed in to the south by a curious, castellated ridge, bristling with gendarmes and rock towers. Arrived at the pass summit, which is a part of the continental watershed, dividing the sources of the Spray from the last rivulet of the Simpson River, we ascended an easy peak on our left and there, at an altitude of about 9000 feet, looked upon a magnificent panorama of the entire Assiniboine system, now seen from a totally new point of view. This face is a nearly vertical wall, and its outline is more blunt than from the north showing also a remarkable buttress on the south *arête*. The great ridge extending southward rises into two high peaks, one of which seemed nearly, or quite 11,000 feet in height. In the surrounding valleys we counted more than fifteen lakes, while below us to the left was a chain of three, whose total length could not have been less than four miles.

The day was only well begun, the weather glorious, and, filled with enthusiasm engendered by such inspiring scenery, and the novelty and suddenness of the unfolding, we began to discuss the idea of descending into the valley of lakes. Barrett said he preferred to spend an hour or two on the peak, studying the mountains with his field-glass, and after wishing us good luck and persuading us to carry his revolver, as we all expected to meet grizzly bears in those days, Porter and I rapidly descended the long scree slopes, and then, turning eastward, plunged into the depths of the forest. Here in the stream bed we saw the skull and horns of a Bighorn where, years ago he had lain down for his last sleep. At length we came to the borders of the lowermost lake, some three thousand feet below our recent outlook point. We were surprised at the great size of the trees and

found no little difficulty scrambling through the underbush and over the decaying and moss-grown trunks. The sombre darkness of the forest, and Barrett's final warning about grizzly bears, and his idea that we were liable at any moment to stumble over one of these sleeping monsters, made us expect unseen dangers from every particularly dense mass of underbrush. Reaching the lake end, we followed up the inlet stream, and presently hearing the sound of rushing water, came suddenly upon a fine waterfall. Some lively scrambling amongst rock ledges and forest was rewarded by our reaching the second lake, the remarkably pure and clear water of which was surrounded on every side by muskegs and pools, where we had to give up all idea of dry feet, and, in some places, were glad to progress at all. We were disappointed with the view and so pushed on, in an endeavor to reach the third and last lake, and after a trying battle with the dense timber, finally succeeded. As the water of this lake began to appear through the trees, we could see Mt. Assiniboine rising in glacier-clad cliffs and vertical walls, nearly six thousand feet above us, making a most impressive view. I tried to level my camera amongst the logs and stumps, stranded along the shore, and get a photograph. Myriads of mosquitoes nearly baffled every effort and the resulting negative shows a horizon far from level. At length, retracing our steps, we climbed the two thousand feet to the pass and reached camp tired, but most satisfied with our day's work.

This excursion, which led to our circuit of Assiniboine a few days later, where we saw the south side of the mountain and got a good idea of its radiating spurs, led me to believe that Assiniboine would be climbed only by its southern slopes. The most feasible way to reach that side was to reverse our circuit of the mountain, taking our horses down the North Fork of the Cross River, then, after climbing an intercepting ridge, place

a bivouac at the mountain's base. Time and circumstances brought this question to the test six years later. So it came about, that in July, 1901, Mr. Henry G. Bryant and I had perfected plans for a double purpose, first to make an attempt to climb Mt. Assiniboine and secondly, to penetrate as far as possible into the great white area on Dawson's map, south of the Kananaskis Lakes, marked with the magic word "Unexplored," that most fascinating and suggestive of all names to any lover of the wilderness.

We arrived at Canmore on the night of the 22nd, accompanied by the Swiss guides, Edouard Feuz and Fritz Michel. Canmore, known to the casual visitor for its coal mines, its dairy supplies, and more important still, as the place where the observation car is put on, is a little village whose scenic charm grows with acquaintance, in a manner very surprising to those who only know it from a passing train. Broad, grassy meadows, and the swirling river, with many a pool and quiet back-water to reflect the green forests and grey mountain peaks, give a beauty, that with a little encouragement from the hand of man, would make a resort similar in many respects to Banff. The hotel however, is not up to the standard of the inspiring scenery, but such poor accommodation as it offered we had to accept for the night, as our outfit of men and horses was awaiting us miles away in the valley of the Spray.

The next day witnessed the start of an expedition that eventually proved most interesting and successful. To save time and energy with our many packages and unwieldy burdens we engaged a wagon to transport ourselves and baggage the first three or four miles towards the pass in the mountains, locally called the White Man's Pass, though indeed, it is only the first gap and the real pass lies some forty miles farther west. The top of this break in the long ridge that extends to

Banff in one direction, and many miles in the other, is a wild pass, full of broken limestones, silent and mysteriously impressive, partly from a certain grandeur of cliffs rising above the narrow trail, and partly also from the abrupt change from the frame buildings and coal mines of Canmore, to the solitude of the untrammelled wilderness.

Winding along the narrow pathway, our little company made a striking though motley appearance, the Swiss guides and one of our men struggling under the several clumsy packages that made up a folding boat, in which we hoped to explore many an unknown lake in the mountain fastnesses, while Bryant and I were cumbered with rope, ice-axes, cameras, and all those odds and ends that, by some fatality or other, never seem to be ready for the original start of the pack-train. Shortly before the lunch hour we were descending the western slope in the valley of the Spray and after passing through a green forest, came to the encampment of our men. There is something peculiarly delightful in the first day's camp, but to come upon it suddenly, and find it all prepared, the tents and great teepee for the men set up, the fireplace in order, with a line of buckets each hanging from its hook, and sending clouds of steam and savoury odors into the forest air, the plates and dishes already set out on the canvas table giving promise of the coming meal, is indeed the height of wilderness luxury. In every detail of the camp there were evidences of the competence and ability of our men, and it would have been a difficult matter to have found a more capable lot, a fact that justly gave us confidence as to the results of our explorations. Ben Woodworth, endowed with bubbling good humor and an unlimited fund of anecdotes, swinging his axe with accurate and powerful strokes, kept the woodpile always replenished and the fireplace a joy to gather round. Jim Wood, experienced as a packer, and Tom Lusk, ever industriously mending his



W. D. Wilcox, Photo.

ON THE MARCH.



W. D. Wilcox, Photo.

CAMP NORTH-EAST OF MT. ASSINIBOINE.

saddles and keeping his equipment in perfect order, proud of never having a sore-backed horse, even when marching through the roughest country, made up our trio of men who were to look after our horses for many weeks to come. All were soft spoken, using the low, mellow notes of the true backwoodsman, acquired amid the silence of forest depths, and each one could replace the other in packing, cooking, or wielding the axe.

Marching some three hours that afternoon we continued the next day along the shores of the Spray Lakes. At the end of the first lake there is an old log shack and here, pausing a few moments to make some readjustment of a pack, we all dismounted for a short rest. And now an accident occurred, most unfortunate to our chances of reaching the summit of Mt. Assiniboine, though we were loth to admit it at the time. Michel, in mounting his horse, either allowed the nail shod toe of his boot or the point of his ice-axe to prod his horse, so that he was hardly in the saddle before he was bucked off, head first, falling heavily to the ground. He narrowly missed striking some broken glass bottles. He rose at once, dancing round in agony, but Edouard immediately divining that his shoulder had been dislocated, with a powerful pull, snapped it back into position. Michel, though in great pain, had the sand to ride the same pony the rest of the day.

The mountains were full of clinging mists, and as the day advanced the heat became intense, both of which facts augured a break in the weather. We passed the last of the lakes and, fording the swift running Spray in safety, rode for miles through burnt timber, till we came at length to the forks of the river, where the stream that rises at the base of Mt. Assiniboine joins that from the White Man's Pass. Here, in a clump of green timber, we established a permanent camp and separated that part of our provisions and outfit that was needed for our attempt on Assiniboine.

The next day, leaving Ben Woodworth in charge of this camp, though much to his apparent regret, we continued up the Spray River, now in a northwesterly direction. Fritz Michel accompanied us, not that we had any hope of using him on the mountain, for his arm, almost black from shoulder to wrist, was now swollen to twice its size, so that he could no longer pull on his coat sleeve, but rather to afford him a certain amount of exercise and excitement, that might prove beneficial.

After an hour and a half we got our first view of Assiniboine. The long wooded valley nearly filled with the chain of lakes which I had first seen six years before, now opened up on our left and allowed us a fine view of the precipitous wall which culminates in the impressive peak that we were soon to see from a more striking point of view, and finally attack on its opposite side, after making a circuit of nearly forty miles from our present position. Thus far our journey had been through continuous burnt forest, making probably the most monotonous and least interesting of all trips in the mountains. But now we enjoyed one of those sudden transformations that make the Rockies so interesting, for, reaching the end of the burnt timber, and ascending a low knoll of limestone, we looked down upon a green meadow full of wild flowers, where the reddish horse-sorrel, the blue-black larkspur, and scarlet painted-cups, made a strange combination of colors. Under a limestone ledge we saw an immense pile of the flowers of the painted-cup, probably gathered by some marmot for his winter store. About half a mile distant eight mountain goats were quietly browsing, perfectly unaware of our presence. Jim Wood set off with a rifle, and after a long and careful stalk, missed hitting anything, not at all to our regret, as we had our larder well stored and were in no need of game. The goats clam-



W. D. Wilcox, Photo.

MT. ASSINIBOINE FROM NORTH-EAST.
Photographed at Altitude about 9000 Feet.

bered a thousand feet or so up the mountain side and could be seen from our camp several hours later. The intense heat and southerly breezes of the past few days culminated in rain that afternoon. However, I improved the opportunity to explore a pass lying to the north of our camp, which for several years I had hoped might prove a shorter route to Mt. Assiniboine than any hitherto discovered. Though Mt. Assiniboine is not twenty miles from Banff, as the crow flies, the long unbroken ridges make detours, and a journey of several days, necessary to reach its base. A hard hour's work, traversing a steep hillside through fallen timber, brought me to an old Indian trail, following which I came to an upland valley, and after a walk of two miles saw some teepee poles that had been used not long before. Then turning northwesterly I came at length to the summit of a pass 7,850 feet in altitude. Two piles of stones, apparently of Indian origin, marked the route along the highest crest. On the other side I looked down into a green valley between very sharp and jagged ridges, running slightly east of north, and then about five miles distant another valley opened up at right angles. This no doubt is some part of Healy's Creek and if the lower part of the valley is not impassable from burnt timber, this route is feasible and possibly shorter than any other to Mt. Assiniboine. Heavy showers of sleet and rain now began to fall, and after working through the wet brush for several hours, I reached camp soaked through and chilled to the bone. In the night there was more rain and heavy thunder.

Though it was still raining in the morning we packed up and climbed the pass out of the Spray valley and entered the extensive moors north of Assiniboine. The clouds rolled away in masses and revealed the great mountain in a dazzling coat of new snow.

Passing the chain of beautiful lakes that conspire to make this one of the most attractive spots in all the mountains, we continued to the west, descending into the burnt timber of the Cross River valley. Here the surroundings were more desolate, and nature frowned in sympathy, the clouds deepened and rain fell in continuous showers that made us thoroughly miserable till we had turned in for the night. Our tents were placed on the shore of the deep-blue lake which rests against the ice-covered cliffs of Assiniboine's northwestern spurs, where Mr. S. E. S. Allen had camped in 1895. What made us more depressed was the certainty that these heavy rains meant ever deepening snows on the chill heights of Assiniboine's upper cliffs. In fact, the rain was so continuous and heavy the next morning, that there was no thought of packing up till about noon, when a slight turn for the better tempted us to march again. But, lost in the mazes of burnt timber, where few if any horses had ever passed before, we made very poor headway, and, at length, coming to places where the trail had been washed away by the rushing river, now at the north-west corner of the Assiniboine group, we were forced into the trackless depths of a mossy forest. Chilled by the continuous showers, while the men were chopping through the logs and water-soaked brush, our horses now added to our troubles by proving refractory. After having marched southwards many miles in the valley of the Cross we camped at length by the river. The weather cleared in the night, and, in the morning, the sun shone from an azure sky. We were on the march at an early hour, confident that this day would mark the end of our journey with the pack horses. It remained to identify the spot where Barrett, Peyto and I had descended the ridge in 1895 in our circuit of the mountain. Casting about in my memory for some feature to identify the locality, I recalled a certain curious clay bank on the east side of the river,



W. D. Wilcox, Photo.

MT. ASSINIBOINE FROM EAST-NORTH-EAST
Photographed at Altitude about 6000 Feet.

where the clay itself is made up of innumerable layers, each as thin as a sheet of paper, evidently the slow-settling deposits of mud in some glacial lake, now long since filled up. As we were marching along, ever alert for this, I suddenly became aware of various features of the landscape, a broken tree, a clump of bushes, a distant peak, as in a dream, slowly harmonizing themselves to fit the picture carried in the mind's eye through the years. Then, as the impression grew stronger, we rounded a sharp corner of the river and came in full view of the well-remembered clay-bank, now realizing that one part of our campaign was ended. The afternoon was spent in preparation for the morrow, our blankets and rain soaked clothing were spread out in the warm sunshine, the climbing rope was measured and overhauled, while Tom Lusk boiled up a quantity of salt pork and made a number of bannocks for our side trip.

We were now almost south of Assiniboine, but the great peak could not be seen, as an intervening ridge cut off all possibility of a view. Our camp was in the long, straight valley of the Cross River, here flowing south-easterly, to enter the western slopes of the White Man's Pass, not many miles distant. The height and nature of the ridge between us and Assiniboine was almost the same as Sulphur Mountain at Banff, though perhaps not so steep and densely wooded, and this we had to cross, with all our instruments of war and materials for a bivouac, which latter we intended to locate at the very base of Assiniboine. Jim Wood volunteered to help us pack our things to the top of the ridge, but in spite of this assistance, our packs were very heavy. However, in a little more than three hours we had ascended 3,050 feet and stood on the top of the ridge, where we looked with eager and anxious eyes upon the south slopes of Assiniboine, rising in steep cliffs a full 6,000 ft. out of the valley below us. Long

study of photographs had impressed a very different image upon our minds than what lay before our eyes. Assiniboine, in a new coat of snow, looked far steeper and more inaccessible than what we had hoped for. We consoled ourselves with the knowledge that all mountain slopes, looked at directly from a distance, appear far steeper than they are. Wood now left us, and with increased weight of packs, we descended to the valley and found a place to sleep near the strange leaf-shaped lake that had so impressed us in 1895. Its waters are deep, and covered still with innumerable floating logs and ancient hulks of trees, the burden of some former snow-slide. From here, the mountain looked far more accessible, and Edouard spent much time working out possible routes for the next day. Little did we realize the countless difficulties, unseen from our point of view. Rolling up in our blankets at an early hour, we took such sleep as discomfort and the excitement of our projected endeavor allowed.

The next morning, July 30th, dawned clear and promising. With 6,000 feet of a difficult mountain before us, Edouard awakened us at an early hour, and at five o'clock we started on what necessarily had to be at the same time our first and final attempt. The temperature was 50 degrees, too warm for the best condition of snow, but, on the other hand, there was no probability of storm. We struck up through the brush and grassy slopes, making excellent time, so that at the end of the first hour our aneroid read 7,325 feet, or a good 1,300 feet above our camp. The second hour, over broken stones and slides, becoming steeper as they led up to the lowermost cliffs, saw us 1,100 feet higher at 8,425 feet. Putting on the rope, Edouard leading, with Bryant next and myself last, we struck up to a line of cliffs, and now for the next two and one-half hours my note-book shows no record of our progress. In fact, the constant succession of cliffs, *couloirs* and snow

slopes demanded our uninterrupted attention. Some mountains, though difficult, permit of a high average speed being made, but we found our progress on this slope, where each of us had to move one at a time, treading with care in precarious footholds, ever watching the rope lest it dislodge stones on those below, most exasperatingly slow, so that we only gained 1,125 feet in those two and one-half hours. Here, at 9,550 feet, we unroped for a light luncheon and rest.

Once more taking up our work, we attacked a succession of *couloirs*, some filled with ice, and as each was overcome, another more difficult had to be confronted. The rope was necessary at every point, and our advance had to be made with exceeding care. In one *couloir*, after an interval of climbing, Feuz disappeared above us and, as at length the rope was all paid out, Bryant started to climb, but just at this moment Edouard shouted out: "Be careful, I am in a very bad place here." It seems he had reached the top of the rocks, and above them was a steep shelf, covered with ice and overlaid with a mass of loose stones, ready to fall at the slightest touch. As the great slabs of stone came rattling down the *couloir* with metallic, almost bell-like sound, we hugged close to the rocks, but even so we were both struck several times by dangerously heavy stones. There was one consolation in our situation, for we realized that every stone that fell made one less above us, and, provided we could hold out long enough, there was an improving chance of our getting up this bad place. As the rope was now all paid out, Bryant and I had to advance directly in to the track of falling stones, while Feuz, with cat-like tread and careful balance, and with absolutely no hand holds, merely precarious resting places for his hands on the loose stones, which he feared to dislodge upon us, crept higher, and at length reached a fairly clear place. Then, assisted by the rope, we came up one at a time. As last man

I had the full benefit of this trying situation, but the last man has one great advantage, that he may dislodge as many stones as he likes, without worrying about the consequences.

Meanwhile, the sun, shining out of a clear sky, was doing tremendous work on the snow slopes above us. The roar of avalanches became more and more frequent, and the long, serpentine streams could be seen, from time to time, pouring down the amphitheatre on our left. Echoed and re-echoed amongst the cliffs, the sound of these snow slides appeared to come from every point of the compass. While we were not in the lowest part of the shallow, cirque-like depression, which appears to the south side of the mountain, we were, on the other hand, not on an *arête*, and so it was quite possible that a great avalanche could sweep over the part of the mountain where we now were. Thus every distant booming roar was startling, and most trying to the nerves, and from time to time Feuz stopped to listen in an endeavor to detect danger at the earliest possible moment. The worst of our situation was that no improvement could be hoped for. The sun was momentarily becoming more powerful, all the rocks and cliffs were dripping, and we sank knee-deep in the soft snow, which scaled off and started miniature slides below us. We all realized at the time, what Feuz admitted later, that the mountain was in a very dangerous condition. Owing, however, to the great efforts expended to get to the mountain, this being the eighth day of our efforts to reach it, we were taking unusual risks. Shortly after this we came to a more difficult problem than any we had encountered hitherto, in the form of an excessively steep ice-slope, covered with new snow. Here, for the first time, the possibility of defeat arose in our minds, though but two hours previous we had been reasonably confident of success. A slight slip on the part of any one here, even a careless bit of work on the treacherous

snow, would have been a serious matter. However, we got through it in safety. Reading over the accounts of various ascents, it seems remarkable how many times this most dangerous of all mountain climbing conditions is successfully encountered. Memory of these chances, however, has slight calming effect on the nerves, while the work is actually going on.

At about half-past twelve we came to the foot of a vertical wall which, in many places, was actually overhanging. Unroping for a moment while Bryant and I took photographs of the marvellous view, Edouard made a reconnaissance along the shelf to the right in search of some *couloir*, but there was none. We were nearly at the top of the great rock buttress which is such a striking feature of Mt. Assiniboine's southern *arête*. A short distance south from where we were, this cliff swings around to the north and drops away into the almost vertical cliffs of the east face. There being no possible way of ascent on that side, we now explored along the shelf in the opposite direction. Not far to the left we found a snow *couloir*, excessively steep, and this we began to ascend, Edouard cutting steps with care. Our progress was very slow, too slow in fact to give us any assurance of final success, and here, accordingly, we had a discussion as to whether we should continue or not. It was now after one o'clock, and we had been more than eight hours reaching our present altitude, which was about 11,000 feet. The slopes of Assiniboine are so steep in this part that we could see only a short distance ahead, but we knew that there were nearly a thousand feet more to be climbed, which Edouard calculated would require another three hours to accomplish. If we continued on and reached the summit, provided we could do so with the snow in its present condition, we could, at the very best, no more than get back before dark to the shelf where we now were, there to spend the night exposed to intense cold, at 11,000 feet above sea

level, with the not remote possibility of having our water-soaked feet frozen. Our excessively slow progress up the snow *couloir* was the last straw that made us decide, though not without regret, to beat a retreat. Thus the south side of Assiniboine had been tried in vain. With the snow in good condition and a little more detailed knowledge of the mountain, we might have climbed Assiniboine from our bivouac at 6,000 feet, but the element of time is the chief obstacle to success by this route, as the last 3,500 or 4,000 feet is a constant climb where the entire party can rarely or never move forward together.

We had, even in defeat, a certain consolation. The climb itself had been most interesting, and from our highest point there was unfolded a splendid panorama: the white line of the Selkirks visible for a hundred miles of their northward course, and to the south an inspiring view over a little known and hardly explored part of the Rockies. Moreover, we had carried the record to another higher level on the mountain, making the last attempt before Mr. Outram's successful ascent exactly five weeks later. What, therefore, seemed at first the least practical method of attack, from the north, eventually proved the correct solution, for it has three great advantages, a level 1500 feet higher to start from, the possibility of using the main camp as a base, and a larger proportion of snow slopes, where rapid climbing can be done. At the time of our ascent we were not aware that the north-western slopes of the mountain could be skirted.

When we started to climb the steep snow *couloir* leading through the cliff at 11,000 feet, Feuz left his card under a pile of rocks at the base of this cliff as a record in case we did not get back. Mr. Bryant, also, says that he feels confident that if we had continued on that day that the probabilities were very greatly against our successful return to civilization.



W. D. Wilcox, Photo

MT. ASSINIBOINE FROM THE SOUTH-WEST

Photographed at Altitude 7750 Feet.



W. D. Wilcox, Photo.

LOOKING SOUTH-EAST FROM SOUTH SLOPE OF MT. ASSINIBOINE.

Altitude about 11,000 Feet.

In our descent we found it impossible to cross certain snow slopes that we had ascended, as they were facing the western sun, and we had a most uncomfortable hour on the steep ice-slope. A final variation of route allowed us to make a long glissade of nearly two thousand feet, saving tiresome work in the lower *coulours*. We reached our bivouac at seven-thirty, after having been out fourteen and one-half hours.

THE SECOND ASCENT OF MT. TUPPER.

BY JEAN PARKER.

Mt. Tupper is at the south-east extremity of the Hermit range, a sub-range of the Selkirks. It was first called Mt. Hermit from the fact that on the ridge leading to it stands a pinnacle which suggests a statue of a hermit. Recently, however, the name "Hermit" has been appropriated to another peak in the range. From all points of view, Mt. Tupper appears an easy and short climb. Short it is, for it is but 9,222 feet high. But several attempts had been made upon it before it was conquered in 1906 by a German named Koehler, with Edouard Feuz, Jr., and Gottfried Feuz as guides.

It was with a sense of great disappointment that I left the Alpine camp at Rogers Pass to make my way along the railway track to Glacier House. All chance of an attempt on Mt. Tupper seemed to have slipped away. Going along the track I met Mr. Henry H. Worsfold, of England, who, I found, was equally disappointed. Some way, I am not sure how, but in a few minutes we had arranged to make the attempt together at the end of the week if the weather were favorable and we could secure the guides. Edouard Feuz, Sr., was with Mr. Worsfold. He was engaged on the spot, and I hurried on to Glacier House to secure Edouard Feuz, Jr., who, I was relieved to find, was free for Saturday and Sunday.

The days of waiting were spent in watching the weather. Frequent trips were made down the track to look at Mt. Cheops, the weather-man of the Selkirks. I was almost afraid to leave the hotel for fear of disturbing that most important factor, the weather.

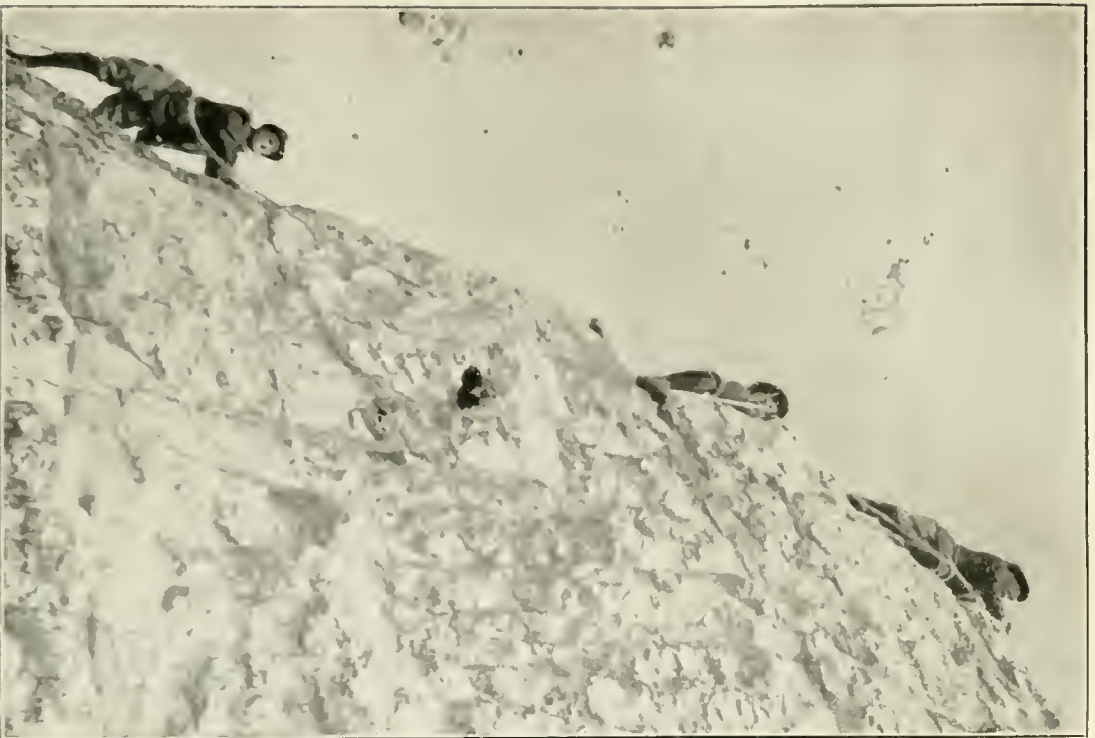
At last Saturday afternoon came, and, by a quarter after three o'clock we were off for the Hermit Hut, where we were to spend the night before making the climb next day. It was hot and we took our time. Turning eastward we walked the five miles of railway ties, choosing the cool snowsheds when possible, until we reached the trail leading up to the Hermit Hut. This hut, which is perched about 2,300 feet above Rogers Pass, was built by the Canadian Pacific Railway for the convenience of climbers. Nothing is too bad to say about that trail. It is very steep, very stony, and, on this occasion, very wet and slippery and altogether stupid. I found it necessary to stop often, and my stalwart companion felt anxious, as he afterwards confessed, about my staying powers for the real climb. However, we reached the hut at six o'clock. Once arrived, it is a favorable place for a bivouac, for the view is well worth a longer and more tedious climb.

The two guides had preceded us, and in a short time the evening meal was over and we were sitting around the camp fire watching the weather again, and incidentally drying our feet. At nine o'clock our spirits went down to zero, for the rain came down in torrents. In a short time, however, it cleared up, leaving the sky bright and clear. In a contented frame of mind we took off our boots and slipped into the bunks for a few hours' rest. I had some difficulty in curling myself up to be free of the pools of water, for our tin-roofed hut leaked. At half-past twelve we were awakened by a prolonged downpour, and this time I felt we were doomed for certain, for even if it did clear up there was a probability of the rocks being covered by a thin coat of ice. It was not a bit of use to sit up and grumble, so I curled myself up again, this time with greater difficulty, and went to sleep. But not very soundly, for I remember distinctly the flicker of a candle and some movement in the hut, which turned out to be Edouard

Jr. chasing a mountain rat. I was finally awakened by still more movement, which proved to be the same Edouard getting breakfast. When asked the time, he said "half-past seven." Then I was quite sure the climb was off. However, this was one of the guides' jokes, and it was only a quarter past four. Breakfast was soon over, the blankets hung on a rope out of the reach of our visitor of the night, the door latched and the fire put out, and we were ready to march. It was then ten minutes' past five.

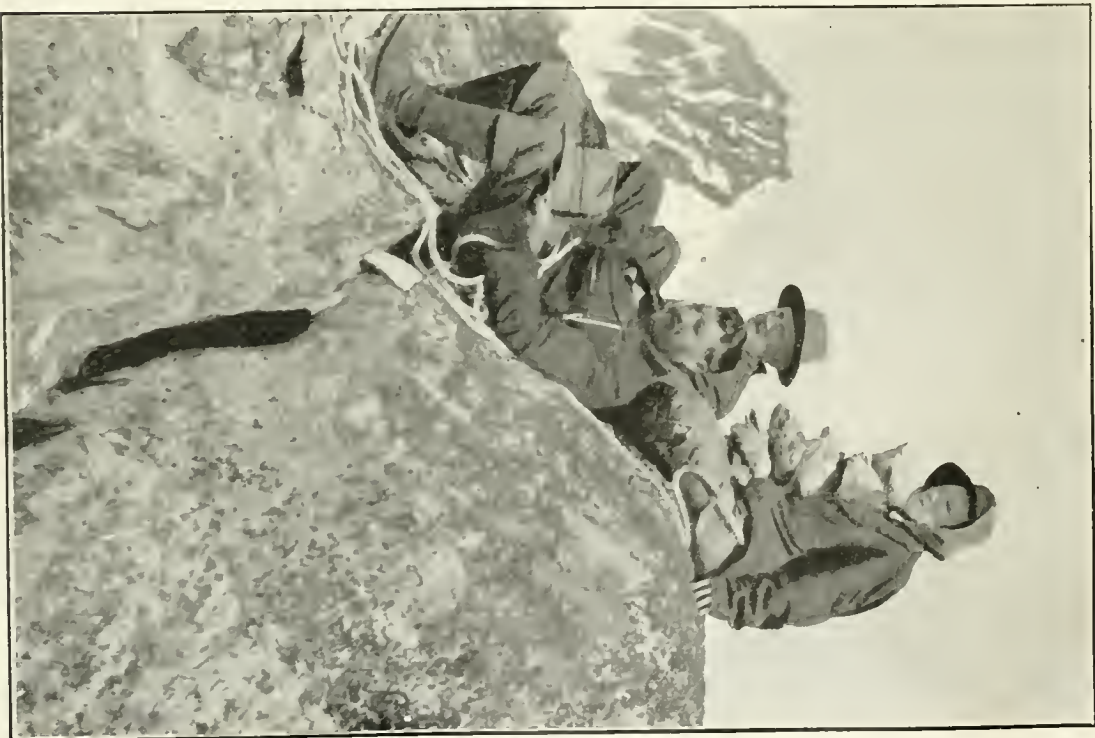
The morning was perfect, clear and cool. Just the morning to make you keep moving. Moreover, there was no cloud on Mt. Cheops and we were safe as far as the weather was concerned. We were not a gay party as we moved up that trail directly behind the hut, for I, for one, felt how unpleasant it would be to return to the hotel and face the "I told you so's." Leaving the trail, we turned directly east, crossing a number of little streams, running down through an easy grassy slope. Above us were Mts. Sifton, Rogers, Swiss Peak and Hermit, and in front of us was Mt. Tupper. Still going eastward we crossed the tongue of the Hermit glacier, up a short *moraine*, over a short snow-slope, and gained the *arête* leading directly to our goal. It was ten minutes after seven, and this was fairly good time, for the way had been easy and we had not loitered. At this point the rope was put on. The sun had come out and we were grateful. Any ice that may have formed during the night had quickly disappeared.

This *arête* running southward, is formed by huge, irregular blocks of solid stone, over which we scrambled or squeezed between, with disaster to our coat buttons. By this time a keen wind had sprung up, and I had to borrow Edouard's coat. (It takes a long time to learn how much to carry on an expedition of this kind.) We climbed right over the "Hermit's House," squeezed



Ed. L. W., Jr., Photo

CLIMBING MT. TUTTLE



Ed. L. W., Jr., Photo

ON THE SUMMIT

through a crack in the "Hermit's Dog," and found ourselves on a small plateau. Then the first really serious work began. This was the rounding of the sheer foot of the "Hermit" himself. This pinnacle, called "The Hermit," occupies the whole of the narrow neck that separates the long *arête* from the Tupper peak. There is no getting out of it. You cannot climb over, for it is too sharp, so you must go around it. There were few footholds and there was a great drop beneath us, but by doing exactly as we were told, and with the help of the wind which blew us tightly against the rock, we passed safely. We dropped from the foot of the Hermit into a rock *couloir*. It was nine o'clock and quite time for a second breakfast, which was quickly dispatched. It was too cold to loiter. The guides thought it was wiser to cache the ice-axes and rucksacks here than to drag them along with us.

From the *couloir* we had a good view of the climb before us. Immense blocks of rock rose up piled upon each other, leaving very scanty footholds, and, in some places, long faces without a single jutting rock. To leave the *couloir* and gain the ridge above we had to ascend a chimney twelve or fourteen feet high, in which rock "bouquets" fell continually. I found myself wishing for the limbs of that tall man who had climbed that chimney before. However, with the help of Edouard Senior's broad shoulder and a hand from above, I managed to get up. We recognized the wisdom of the guides in leaving the axes behind, for, with them, we should have been greatly hindered. Another small and very rotten chimney barred our way to the next ridge. It was soon passed, and from there we crawled up a long, plain, perpendicular face of rock to an overhanging shelf, along which we crawled to the main corner on the east. Our surprise was great when a short climb brought us suddenly to a small rectangular plateau, upon

which was a long rock mound about three feet high, and upon that two or three stones of a stoneman. It took several seconds to realize that we were actually upon the summit of the long-coveted Mt. Tupper. It was ten minutes after ten, making exactly five hours from the Hermit Hut.

We were hungry, but alas, everything was left behind in the *couloir*. My companion found a small cake of chocolate in his pocket. We devoured this, and, for the rest, feasted ourselves upon what we could see. Leagues of peaks and glaciers were upon all sides of us. I could myself recognize Mts. Victoria, Hungabee, Biddle, Stephen, Sir Donald and the two great glaciers. The guides pointed out numerous others—Mt. Goodsir, the Dawson range, Mt. Forbes, the Columbia snow-field, quite too many to name.

After the guides had made a new stone-man, we left the top. It was exactly ten minutes after eleven. We worked our way down, slowly and cautiously, as we had gone up, stopping in the *couloir* long enough to have a third breakfast and gather up our traps. Then we hurried along, around the "Hermit" and over the same huge blocks of rock and through the same cracks until we gained the end of the *arête* where we unroped. The rest of the descent was quickly made and the hut was reached at ten minutes after four. The round ascent occupied exactly ten hours.

Every step of the way had been full of interest, our guides had been capable and thoughtful, and we were well satisfied with the day. We had supper at the hut and by ten minutes to seven were at Glacier House dressing for dinner.

If I were asked what part of the whole climb was most tiring, I would not hesitate to say, that stupid trail from Rogers Pass to the Hermit Hut. Of the difficulties there is very little to tell. From the time we left

Mt. Rogers

Hermit Mt.

Mt. Tupper



A. O. Hackett, Photo.

MT. TUPPER FROM ROGERS PASS

the *couloir* until we reached the summit it was all hard climbing, requiring attention and obedience, but with two such good guides we could not fail.

EDITORIAL NOTE.

In conjunction with the foregoing account of the first ascent of Mount Tupper by a lady, an account of the first ascent, made by Wolfgang Koehler, of Leipzig, in 1906, taken from the Minute Book at Glacier House, will be of interest as a matter of record.

ASCENT OF MOUNT TUPPER BY WOLFGANG KOEHLER.

(Translated from the German.)

July, 1906.

After I had spent four days with Edouard Feuz, Jr., in the Yoho Valley, and he had there told me of Mt. Tupper, of which no ascent had yet been made, I determined to make the attempt.

I had still two days, so we telegraphed on June 17th to the Glacier for blankets and stores to be provided for us at the Hermit Range hut. The next day, by previous arrangement, Edouard woke me at 8 o'clock. Alas! the weather was bad. We telegraphed down, made it a day of rest, and went the next morning up Mount Stephen, where Gottfried accompanied us.

On that day I went with the two of them to Rogers Pass, where Edouard showed me Mount Tupper. I was astonished at the beautiful wild form of the mountain, sad over the frustration of my purpose, and mad at the Fates who had left me so short a time here.

At Glacier we met the old Herr Feuz, and while I was at supper the thought flew through my head, "Perhaps you could go back again." I went up to where

the three stood, told them of my idea, and communicated to them that I had sent everything home, pick, boots, dress, etc. "Pick and hat I can lend you," said Edouard, "and since you can get fresh clothes and boots in Vancouver, you have everything necessary."

So we nailed the shoes with nails which we had brought from Switzerland, and with light hearts away and off to Alaska.

I started back on Sunday, July 1st, but had to wait on account of it being Dominion Day; then I quickly bought the necessaries and journeyed back to Glacier, where I was welcomed by the three Feuz. I quickly lunched and changed my clothes. Alas! the breeches were not a very good fit. However, Edouard lent me a pair, and soon (5.10 p.m.) we joyfully wandered forth along the track, Gottfried, Edouard and I.

It was a magnificent, cloudless day, which I found particularly enjoyable after the weeks of rain I had experienced. Soon after Rogers Pass (6.15 p.m.) we left the track and continued our way, pretty well warmed up on account of our heavy packs, along the narrow path to the hut high above, which we reached before 8 o'clock (7.55 p.m.).

Mr. Flindt had had the kindness to lend me his field-glasses, and often we stood still in wonderment at the mighty walls of rock of the mountain, and we talked of the possibility of getting to the two summits, through the mighty collection of peaks crowded together. Gottfried made some fine cocoa, Edouard did the rest, and I sat before the hut and played the mouth-organ. The mosquitoes stung us nearly to desperation. After supper, and a hunt after a big rat, we went, at ten o'clock, to bed. We could, however, sleep but very little, on account of the mosquitoes, which persecuted us terribly.

The night was wonderfully beautiful, a cloudless sky and brilliant moonlight. Moreover, to be surrounded by the dear, beautiful mountains! How one's heart goes

out to them! Towards 4 a.m. we got up, breakfasted, and started off (5 a.m.). We took the direction at first immediately behind the hut, then turned off to the right, and across the little icy creek, looking up to the Rogers, Swiss and Fleming's Peaks, Mount Tupper, Sifton and Grizzly. It was always up and then down again. We had innumerable gullies and streams to cross, until we reached the ridge, at the end of two hours. We rested a little and then started on again, always following the ridge, over icy blocks.

At 7.30 we stood on the Steinmann, which Messrs. Wheeler and Herdman reached on their expedition along the ridge towards Mount Tupper. From below, it looked as if everything was very bad stone, but this was not really the case: for the most part it is good, rough stone. Soon we saw the great, beautiful *gendarme* before us, directly in front of the little one. On a smooth inclined plain we slid downwards for a bit, and then stood on a piece of a very sharp ridge.

Edouard thought it was not possible to go to the little *gendarme*, but we climbed in a dry furrow on the plateau and crassed it: then climbed along the plateau to a beautiful canyon, high up, and so came to the little *gendarme* with difficulty. We continued to the right on easy ground, and climbed into a corner, high up the steep precipice to the next plateau. There the hold was very slight, notwithstanding great cautiousness. The narrow but solid flat brought us now to the left (about 9 a.m.) directly behind the great *gendarme*, where we rested and lunched.

We took a good look round to see where we were. Behind the *gendarme* the ridge made a perpendicular rise, perfectly smooth and without hold. Here two rectangular rocky walls were formed. On this ridge, on the side towards Mount Hermit, was an enormous rock, and in the chasm made by this wall we were able to scramble on upwards. On the side towards Mount

Macdonald runs the wall fifteen to twenty minutes, without hold of any sort, to a beautiful corner, then fifteen minutes further on to the right, to run back again in the old direction. In the corner a crevasse runs upwards and seemed a further possibility.

The one which to me seemed the best was the following: In the middle of the right wall was a broad chimney, if only we could get up there direct. Two ridges appeared running parallel, which seemed to make the ascent possible. We climbed to the first ridge, next to the chimney, then up the first ridge in the chimney itself. So far we were still right. With the help of three picks and four hands Edouard got up a little higher, but quickly came down again. That could not be the right way. He tried then to go direct by the chimney, but that was not practicable, and so he had to come back.

In between was Gottfried, who had successfully climbed up and stood in the chimney. I followed, Gottfried continued on, but a shower of big and small stones came down. It seemed as if everything was rotten, and, in spite of great care, not one of us could avoid bringing down the stones. We now went on the outside, round the rock, and came to a big flat, climbed a little broken chimney and then got over a large rock. Soon we stood again before the wall. One piece appeared somewhat loose, and formed a breach, which gave us sufficient hold to get on to a small platform. From there it was a short, somewhat overhanging climb to the higher platform. "This is the sort of place for people with long legs," Edouard called out (I am, to wit, 6ft. 4in.). "Alas, we little ones have no chance."

We now came back again to the ridge, came to a little *gendarme* with a beautiful outlook down the valley, and climbed on, until we suddenly came to a wide platform, from which there is no "bicycle path" to the Aiguille du Grépon. We had all three expected that the last piece to the summit would be especially difficult. It

looked so from the distance, but when we came to it, quite an easy way appeared of getting up. We stepped over one sharp knife-edged ridge, "tight-rope dancing" we called it, and with a loud hurrah reached the summit.

"This is really the top," said Edouard. And so we got on to the beautiful broad summit. We had all thought that the last piece would be the hardest. With loud yells we took possession of Mount Tupper. During the whole way we had the most beautiful views. Although there were some light clouds in the sky, Mt. Stephen and Mt. Purity stood out clear and beautiful among the nearest mountains, and the numberless other peaks and glaciers were beautiful beyond words. Soon we thought about crossing to the little peak over the zig-zag ridge. I gave them three suggestions, one—the most important—the guide was a little doubtful about, because the weather looked likely to be bad, and we had left the whole of our packs in the hut.

If ever again I come to Mount Tupper I would start earlier and certainly try and make the crossing. We took a meal and enjoyed the view and built a stoneman. But the highest peak was not very secure footing, and we thought we should have been blown away by the wind.

We built, in three-quarters of an hour, a big stoneman, bigger than I am, on the side which could be seen from the railway by the naked eye.

Getting the necessary stones to make it was the hardest task in the day. We then laid information in our sugar box, the contents of which disappeared in Gottfried's pocket, ate snow mixed with peaches, which we split with our picks, and I played the mouth-organ, "*Ich hätt einen Kamaraden*," which put us in a good humor. We tried with Gottfried's pocket glass to make a reflection, but failed; the sun was not right. After we had taken some pictures of the summit, we said good-bye to our stoneman and began the descent in very good

humor. The two *gendarmes* I called "Edouard" and "Gottfried," whereupon they, in revenge, called the rotten chimney, "Köhler Chimney." Everywhere in this place it is bad and dangerous, the rocks looking ready to fall. We got on as quickly as possible and were glad to get over it. We made good progress. Soon we left the ridge behind and slid on the snow, and then a nice glissade down into the valley. Cooled off by a cascade which we had to go through, and greeted by marmots and our house-rat, we came at last to the hut. We had arranged not to spend the night there, on account of the mosquitoes, but in an hour to continue the descent. After a nice cocoa from Gottfried's master hand, and having changed shoes and socks, we got quickly down to the valley by 6 o'clock, and at 6.25 reached the railway. We washed and walked back by the track. "If we only go the right way," said Gottfried. Edouard and I had the pleasure of getting covered with coal dust from the locomotive.

At the final curve before Glacier House I said a last farewell to my mountain. "I hope to see you again." And so we came back, rich in experience and in the best form, arriving at Glacier House about 8.15.

And the moral — Mount Tupper is not a neck-breaker, it is full of interest, but there is nothing but what a good climber should accomplish.

Caution where the ground is very bad.

Would that many could see and experience the joy of this beautiful mountain as I have done. To my dear guides I give my best thanks, and wish them the best of things for the future, though I well know that two such capable young guides will always be in requisition.

"Aufwiederschen, Glacier House."

BEYOND THE ASULKAN.

BY W. D. HOLWAY.

For several years F. K. Butters and the writer, of Minneapolis, Minn., had camped and climbed in the Canadian Rockies, but previous to 1908 had given but little attention to the Selkirks. A flying trip to Fish Creek Valley in 1906 had shown us that the region was the most attractive one within reach, and we arrived at Glacier in July, 1908, prepared to put in all our time there. The great length of some of the snow bridges observed during our first trip made it seem desirable to obtain a third man. We therefore visited the Alpine Club Camp and fortunately persuaded Howard Palmer, of Boston, to join us. We had two pack-sacks of ample size; one pack-cloth, 5x6 ft., with a pack harness; one 5x8 ft. silk "A" tent with round ends, a form which permits great variation in floor space, is absolutely waterproof, and weighs only 5 lbs.; two Johnson sleeping bags with four thicknesses of light blankets, which were unlaced and made into a bag large enough for three persons. (weight 20 lb.); aluminum dishes, cameras, plant press, camp axe, alpine rope, 3 ice axes, sweaters, etc.

For provisions we carried the German erbswurst, flour, sugar (as much as of flour), bacon, beans thoroughly cooked at home and dried, a little corn meal, prunes, sweet chocolate, and tea. All the food was packed in water-proof 10 lb. sacks.

Leaving the Glacier House at nine in the morning, we walked up the Asulkan Valley, along the moraine, and across the glacier to the summit of the Asulkan

Pass. Although this was all up hill, 3700 feet above the hotel, it was far easier than the steep descent of 3000 feet to the Geikie Glacier. The last one thousand feet of this descent especially required great care with our heavy packs.

From the pass we kept to the left following the stream until we reached the falls, when we crossed it and continued down until we could get on to the snow that filled the lower part of the gully. The Geikie Glacier is about a quarter of a mile wide where we reached it and as the crevasses were all open it was soon crossed. By this time we were perfectly willing to camp, and climbing the sliding stones we descended into the corner formed by the moraines of the Geikie and Dawson Glaciers, where we were perfectly protected from the cold winds and fuel and water were abundant. Later in the season we found our spring dry and were obliged to bring water from the stream above. Soup, flapjacks, bacon and tea soon made us feel glad that we were alive.

In the morning we ascended Mt. Fox by following the Dawson Moraine to where it turns sharply to the left, then straight up and over the cliffs; thence to the left over loose stone to the snowfield which was crossed to the rocks and the summit was easily attained. The drop into the Beaver Valley was very impressive, and the view, as from all the peaks in this section, magnificent.

A day was spent in following the Geikie Glacier to the upper ice-fall, a trip which we advise all to make, as it is over the finest glacier in all the region. While drinking from a stream on this glacier we were surprised to see the ice crack for a long distance each way and our water disappear far beneath us.

Our next expedition was across the Dawson and Donkin Glaciers to Donkin Pass. The crevasses were easily avoided, but a large bergschrund was encounter-



E. W. D. Holway, Photo.

MT. BONNEY.
From Donkin Pass.



E. W. D. Holway, Photo.

MT. WHEELER.
From Cyprian Peak.

ed at the final rocks. A way into it was made but the opposing wall of snow was 12 feet high and absolutely perpendicular. A remark by one of the party that it looked easy started us at it and by using all the ice axes for steps one of us surmounted it and let down the rope. Then it was over steep ice slopes to the left-hand end of the big overhanging cornice and over that to the summit. Here we saw three mountain goat feeding. The weather had been promising to give us a storm and we were soon being pounded by hailstones that sent us to the shelter of the rocks. As there was no prospect of being able to do more that day we looked for an easier route down, and going to the east avoided most of the ice, reaching the bergschrund where two heavy sheets of ice projected just right for our use. We cut steps in the lower one and hand holes in the upper, and making our way carefully along with occasional glances into the blue caverns beneath us, reached the base of a huge snow-ball which had fallen from above. Up this we cut steps and from the top of it we jumped to the glacier below and hurried to camp in a pouring rain.

The next morning was fine so we looked for a new way to ascend Mt. Donkin, as having already made Donkin Pass we did not care for that route. We therefore went up the Dawson Moraine, turned to the right and crossed the Dawson Glacier at the first opportunity; thence directly to the summit of the ridge some distance north of the survey station "Donkin North." The ridge reminds one of the Abbott, but is so narrow in one place that we straddled it and worked ourselves along. As soon as we could we descended to the glacier on the west, crossed it to the south and made the ascent over the big stones of the western slope. The view in every direction is glorious. It may be noted that the photograph in Mr. Wheeler's *Selkirk Range*, p. 96, is from here and not from Donkin Pass,

as labeled, and that there are many other directions in which the scenery is equally grand. The climb offers no difficulties and is alone worth the trip to Fish Creek.

Our provisions were now getting low and before going for more it was voted to get up early for once and climb Mt. Dawson. The day began with mists over all the high peaks. No trouble was experienced in reaching the summit and, as the bergschrund was in good condition, we attacked the wall at the easiest point. At first it was over wet and sliding shale, then over loose stone to the summit. From here we followed the *arête*, finding a small camp axe, no doubt lost by the Austrian climber,* whose record-breaking time table is given in the Glacier House book. We had a little step-cutting in ice and some of the snow-bridges were longer than was entirely pleasant, but we safely reached the rounded pile of shale between Selwyn and Dawson, where we lunched and waited in vain for the clouds on the latter to disappear. The sun was shining on Selwyn so it was decided that a view was better than getting 100 ft. higher without one. We therefore crept along the wall of rock and across the big cornice until the broken slabs of Selwyn were reached. Here one of us went directly to the summit and the others went down some distance by the side of the first couloir to ascertain if a descent to the Deville Glacier was possible. The gully was then crossed and the summit reached over the long slope of loose rock and slabs that extends from the glacier to the top. The view was good in every direction, although Mt. Dawson remained in mist. After leaving our records and making photographs we went down to the Deville Glacier. Crossing the large bergschrund and keeping to the right, we followed the Bishops Glacier until we were below Donkin Pass. Here we found our three goats feeding along the moraine. When they saw us they climbed over the

*Edward Franzelin, Bruneck, Tyrol, Austria.

rocks of Mt. Dawson in a way that made us envious. We crossed the pass and reached camp by our last route, satisfied that we were not yet "clean gone to flesh pots and effeminacy," for we had in one day, without guides, climbed Mt. Selwyn and walked entirely around Mt. Dawson. This is also a trip that we strongly recommend for its great interest and beauty.

The next day we made our tent snug and returned to the Glacier House for food. Mr. Palmer, still needing exercise, ran up Sir Donald one morning with Edward Feuz, Sr. Mr. Butters and the writer, having made the ascent a few days before, were quite willing to enjoy a little rest. The third day we filled our packs and returned to our tent.

The next morning, as we started to Donkin Pass with all our things, we found our loads to be 50 lb. each. The bergschrund was in better condition, but the 300 feet of slippery, sliding rocks were made an inch at a time and a long rest was taken at the summit.

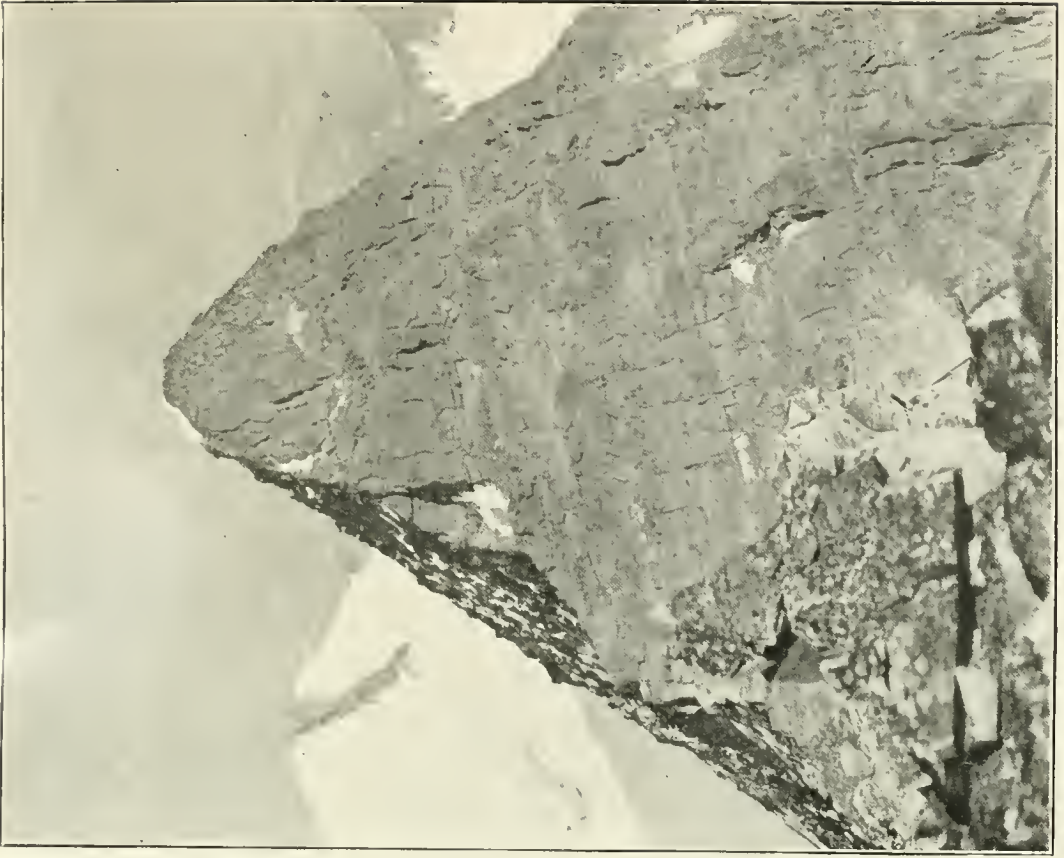
We then went down to the valley, crossed the snout of the Bishops Glacier and soon came to the Huber, Topham and Foster camp of 1890. There was still a can of corned beef, which we found later to be perfectly good after its eighteen years exposure to Selkirk weather. Their iron frying pan, though rusty, was yet serviceable, and we appropriated it so that two might fry flapjacks and give us more time for sleep. There was no water here so we went 500 ft. lower and camped in a fine little meadow.

MT. CYPRIAN, FIRST ASCENT.

The second day we crossed the Bishops Range, 1500 feet above our camp, descended the Black Glacier and looked for a route up Cyprian. It was soon seen that if we could surmount the first belt of cliffs the mountain was ours. For a long time no way was discovered except to begin the ascent some distance to

the west, try to reach the ridge and make a descent into the col. As we were turning towards camp Mr. Palmer luckily saw a ledge leading upwards and after a hasty examination with our glasses, we decided to try it. In the morning we reached a point some 60 ft. below this ledge, which could be attained through a sloping chimney or around and up a smooth gully. Putting on the rope so that there might be some limit to a slip, one of us worked slowly up the gully as far as the rope permitted, and as there was no place to stop a request was made to have an ice axe tied to the end of the rope. This was carefully drawn up, a firm hold obtained with it in the rocks above, and a standing place reached. From here a gully was crossed and a ledge found leading down to the chimney. Then the rope was lowered and the others came up. After clearing the chimney of loose rocks it was found to be a good route, although it was necessary to ascend upon one's back, as the hand holes were all upon the upper side. The ledge seen the day before was now easily reached and an interesting scramble over rather smooth ledges and some loose rocks brought us to the col on the west and thence over big block to the summit.

There was no sign that any one had ever been there, so we built a stone man and left our records. The actual summit is not visible from Donkin Pass, so our mountain is not to be seen from that point. The precipices on the south overhang and stones rolled over did not touch until they struck the slopes above the Black Glacier. Mt. Augustine, 50 ft. higher, was separated from us by a deep chasm and offers a fine climb. Cyprian is more difficult than Selwyn, but when the rocks are dry it can easily be done by anyone who has had a little experience. The ascent can, the writer thinks, be made in two other ways, but our route certainly is the most attractive one. It will be hard to find a finer climb.



E. W. D. Holway, Photo.
AUGUSTINE PEAK, BISHOPS RANGE,
From Cyprian Peak.



E. W. D. Holway, Photo.
CYPRIAN PEAK, BISHOPS RANGE
From Donkin Pass.

MTS. WHEELER AND KILPATRICK.

We went up the Bishops Glacier and over the Deville *Névé* to the col between Wheeler and Kilpatrick and along the *arête* to the summit of Wheeler. There is no real climbing by this route, but the view is of the wildest grandeur. The stone man was in bad condition and we built a new one a little to the north. We returned by the same route, and the long tramp over the snow was so tiresome that it was 10 o'clock the next morning before we left the tent. We then went over to the Black Glacier and up the glaciers and snow-fields to the col on the west of Kilpatrick. The crevasses on the slopes are immense and the snow-fall of the different years is plainly shown by the dark dividing lines. The *arête* of Kilpatrick was not to be easily reached, and as it was late we gave up the ascent. It can be made from the col by going east over the small rock mountain projecting from the ice, or better by keeping well to the left on the way up, thus reaching the *arête* to the east of the rocks and avoiding the climb over them and the cutting down the ice slopes on their eastern side.

With such constant climbing there was no difficulty in following Abraham's rule No. 20, "Eat and drink as much as possible," and a morning came when there was nothing left after breakfast. So at 9 o'clock we packed up our loads, now reduced to 25 lbs. each, and crossed the two ranges between us and the railway. It was dark as we left the Asulkan Glacier, and 9.30 p.m. when we walked into the Glacier House. Without anything to eat since breakfast, we had, for several hours, been planning a dinner, and we soon captured the chef and waiter and marched into the dining room, just as we were, ordering sirloin steaks, eggs, and all good things. After an hour or so these had disappeared, and the "boys" of the party were willing to tighten their belts and wait for breakfast. The "old man," however, had

only replaced the wear and tear incident to crossing the first range of mountains and asked the waiter to duplicate the orders. He soon returned and asked if we were willing to wait a little, as the chef was in bed, but would get up if we said so. He was invited to arise, and we soon began another feast. It is hard to tell which has left the most pleasant memories, this dinner, or the days beyond the Asulkan.

HOW TO REACH MOUNT SIR SANDFORD.

BY P. A. CARSON.

Mount Sir Sandford (elevation 11,634 feet), the highest peak in the Selkirks, is at present the Mecca of many aspiring pilgrims in Canada. This magnificent mountain, whose snow-capped summit rises over a thousand feet above its neighbours, lies some twenty-three miles in a north-westerly direction from Beaver-mouth railway station, but these twenty-three miles resolve themselves into many more before Sir Sandford can be reached without the use of an aeroplane. The mountain lies between two branches of Gold Creek, which stream flows into Columbia River about twenty miles below Beavermouth. Either of two routes may be taken to reach the base, and it is a debated question which is the better—by canoe down the Columbia and up Gold Creek, or by pack trail up the North Branch of Six Mile Creek. As canoes are more easily available in this vicinity, it would seem at first that the water route is the more practicable. The mouth of Gold Creek can easily be reached in five or six hours, and that stream can be ascended five or six miles by canoe. Thence it is necessary to shoulder packs and push through the rough valley of Gold Creek. On crossing Novelist Creek, a branch of Gold Creek from the Northwest, it seems advisable to ascend to timber line of Mt. Sandford Junior, which is three miles east of the coveted summit, and in reality is part of the same mountain. Now the disadvantage of the canoe route is evident. The peak of Sir Sandford is several miles away, and the climbers are on the north-easterly slope of the mountain, from which direction I am sure the ascent would be most arduous, if not impossible.

The route via Six Mile Creek can be made either with horses or on foot. Dr. Shaw and Mr. Reuben Shaw, in August, 1908, made a reconnaissance of Mt. Sir Sandford, travelling by this route on foot, with fairly heavy packs. During the latter part of the same month, I made the trip into this district with horses, which had to be shipped to Six Mile Creek by rail, as there is no trail leading to it from either direction. From the siding at Six Mile Creek (elevation 2600 feet), we ascended a long ridge, covered with *brulé* and windfall, which lies between Beaver River and the North Branch of Six Mile Creek. After a steady pull of nearly three hours we made three miles, and attained an elevation of 6,000 feet, whence the going was comparatively easy through the sparse timber of this high altitude. We advanced north-westerly another three miles to two small alpine lakes forming the head-waters of a stream flowing easterly into the Columbia. Continuing in the same direction, we went through a pass at timber-line, and ascended to "The Esplanade," a long ridge level as a board walk, on the westerly slope of Cupola Mountain and the Esplanade Range. To the west the North Branch of Six Mile Creek lay several thousand feet below, while beyond rose some of the most magnificent peaks of the Selkirks, Mts. Iconoclast, Sorcerer, Seraph, Cherub, Sonata and Symphony. Advance was continued along the Esplanade, and a gradual descent made to the headwaters of the North Branch of Six Mile Creek, when we crossed through a narrow snow pass and reached the head of Spinster Creek flowing northerly into Gold Creek. From this pass the first good view of Mt. Sandford is obtained. We advanced for about a mile from the pass, dropping down several hundred feet, and pitched camp beside a beautiful alpine lake, Sunbeam lake. The total distance traversed from the railway was a little over twelve miles, and by getting an early start with light packs it can be made in one day. This is as far as horses can be taken



P. A. Carson, Photo.

SIX MILE CREEK PASS.
On road to Mt. Sir Sandford.



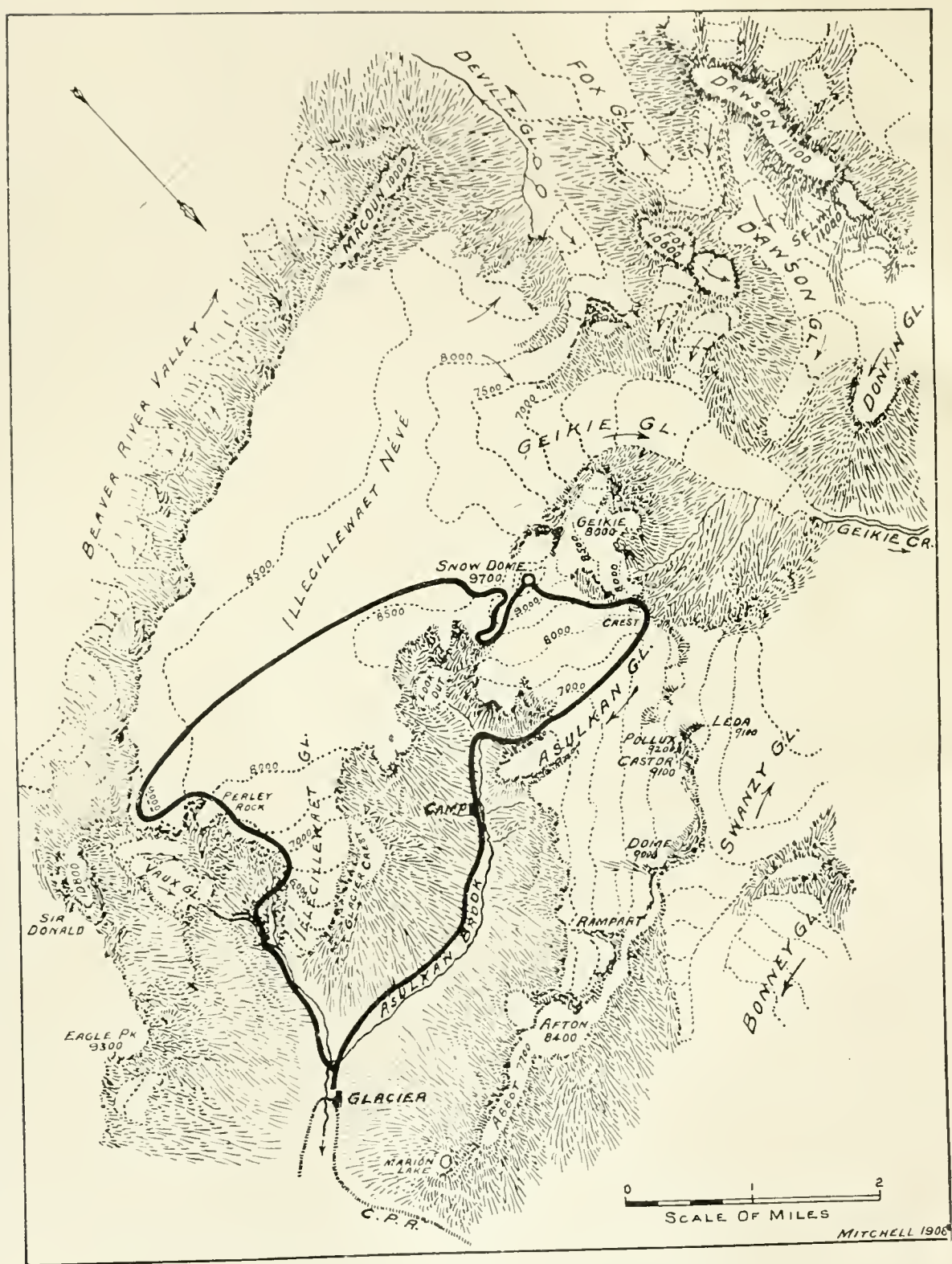
P. A. Carson, Photo.

MT. SIR SANDFORD.
From Summit of Mt. Sonata, Altitude 9500 Feet.

conveniently, and the lake is a beautiful spot for a permanent camp. The rest of the journey must be accomplished on foot. By dropping over the timbered ridge to the west of the lake, then over a range of low mountains lying between Spinster Creek and Bachelor Creek, the valley of Gold Creek can be reached in five hours, even with heavy packs. Before descending into the valley an excellent view of Sir Sandford is obtained, and a tentative plan of campaign may be mapped out. It is very desirable to strike Gold Creek just below where Bachelor Creek enters it from the south, for here there is a small island, and no difficulty should be encountered in crossing the two channels by means of felled trees, although the creek is a rapid torrent. From this point Dr. Shaw advanced up the rough valley of Gold Creek, but I would advise ascending to timber-line in a north-westerly direction, where bivouac can be made at a convenient point for making the final attack on the peak, now only two miles away.

I have viewed Mt. Sir Sandford from three sides, south, east and north. The south-west and north-east slopes are very steep, and seem almost impracticable. The north-west slope of the main peak is a gradual one, but it is too far away for convenience. The north-easterly ridge of the main peak, on viewing it from the south-east, looks almost precipitous, but from the direction of Bush River it can be seen to have a slope not greater than 45 degrees. The photograph illustrating this article was taken at a distance of four miles from the summit of Mt. Sonata (9500 feet), being the mountain immediately south of Sir Sandford. The white outline of the south-easterly ridge is distinctly visible. If one can successfully cross the glaciers and ridges to this south-easterly ridge no great difficulty should be found in conquering Sir Sandford. And all honor to those who achieve the victory!

Regarding the time necessary to make the trip and ascent from the railway, I should say that with no time lost through unfavorable weather or unforeseen circumstances, it could be done in seven days. At the end of the second day the main stream of Gold Creek can be reached and crossed, and camp made at timber-line on the third day. Allowing a day for reconnoitering a route to the main peak, the ascent could be accomplished on the fifth day, back to Sunbeam Lake on the sixth day, and to the railway on the seventh. Provisions should be taken, however, for at least ten days. The attempt on Mt. Sir Sandford should be made between the 15th of July and the 21st of August, as about the latter date a heavy rain, with snow on the mountains, generally falls in this locality.



ROUTE OVER GLACIERS AND SNOW DOME

OVER THE CORNICE OF ASULKAN SNOW DOME.

BY C. H. MITCHELL.

All of us had, in the previous five days of the Rogers Pass Camp, been up either Rogers, Hermit or Sir Donald, with their *moraines*, rockfalls, *couloirs*, *arêtes* and chimneys. The ice and snow work on these climbs had not left as vivid impressions as did the rock work, and if we were to make one more ascent before the close of camp, a lasting impression of a real day on glacier and *névé* seemed the thing most to be hoped for.

It was with this hope that two of us planned a route to fulfil these conditions, a route different from those any of the previous climbing parties had taken, and the genial President was asked for his sanction and advice. It came slowly. It was a long trip—a very long trip; it was arduous; there were only to be active, strong climbers; it might be dangerous; and there were positively to be no ladies.

But the approval came and the *personnel* was arranged, and—good! we were to have Hector Wheeler as our guide with a 120 ft. rope, and we were to sleep Sunday night at the Asulkan Camp, that which had been made in the valley at the foot of the glacier, and on Monday we were to do the turn, coming straight “home” to the Main Camp at night—and those who knew, said we would most surely be late.

It had been a peaceful Sunday at the Main Camp—a bright, quiet day with the stately white clouds floating high above the peaks and the silent places on the mountain sides listening for the far away echoes of the

valley. The members of our glacier party slowly broke away from the camp during the afternoon, rambling down to the Glacier House, there to dine perhaps, and on up at their leisure to the Asulkan camp.

Eight-thirty p.m. found the party assembled at the two little tents by the brookside shaddowed by cedar trees. One of the party had been carefully instructed as to the whereabouts of the camp, and for fear he might go astray in the twilight a barricade was constructed across the trail at the "turn in." But who, familiar with Canadian outdoor life, could have mistaken the far away signal up the valley, where a thin, blue curl of smoke rose above the dark green tree tops? Any one could have guessed it was the mosquito smudge.

The forefoot of the Asulkan Glacier lay three hundred yards distant and the hollow murmur of its water was our July night's lullaby, and a quick rub down in its icy waters proved a welcome sleep inducer. Not that any inducement was needed, for it seemed but a few minutes, after outdoor things were snug for the night, before all the party had gotten under its blankets with the usual accompaniments of grunts and smothered interrogations as to the whereabouts of sundry articles laid aside in the darkness. He who has even once slept in a bell tent with six other fellows on a dark mosquitoey night, can readily appreciate the sensation and the humour of it, and it can be safely affirmed that the pre-slumbering *sotto voce* ejaculations, grunts and mutterings of a tented group of gentlemen tenderfeet from the plains and effete civilization are quite the same the world over.

Were you ever entrusted with waking a camp at any morning hour before four o'clock? And did you ever make the mistake of rousing the whole tent an hour too soon because in the half light your watch deceived you? They were not quite all awake at two-thirty, but three o'clock, at the latest, proved after all, none too

soon to be up, and at three-thirty a breakfast looked awfully good and tasted better. One is afraid to tell all the good things cook had ready, because it wouldn't be believed for such a place and hour. Then there were the packs of lunch to be prepared—meat and jam sandwiches and oranges and chocolate to be apportioned to the three rucksacks; then the harnessing and the roll call for the start and off we were, up the trail by the brook with just the least glimmer of a four o'clock dawn on the mountain tops.

That first hour did seem pretty steep, up the side-hill pony trail on the slope of the shadow side of the valley until a thousand feet above our night's camp, then across to the right moraine for a steady upward boulder climb and presently out we came on the ice itself for our first halt. We had a chance now to look ourselves well over with real blue ice for a relieving back-ground. We felt ourselves, to see who we were that morning at five o'clock on the famous Asulkan and it did seem hard to realize our make up. First was Hector, with the Stetson crest and mighty stride, then the chivalrous veteran climber, representative of the English Alpine Club, then a Winnipeg lawyer, a Toronto consulting engineer, a Medicine Hat journalist, a Calgary civil engineer, and lastly, as if to shepherd the flock, the minister from Lethbridge. How lightly we trod the long ice slope in that exhilarating air; we will always remember it and it seemed but an early walk to the crest of the glacier where, with eager expectancy to look over, we arrived at seven o'clock and earned a laconic assurance from Hector that previous days, parties on the Asulkan trip had thought well of their efforts to arrive by ten o'clock.

But our day was just begun. We lingered a short while spellbound by the panorama which lay before us glistening in the morning sun; the peaks tipped with rose and the valleys still in blackness and, above all, the silence. Fox, Selwyn, Feuz, Dawson, Häsler and

Michel Peaks, all above 10,000 ft. stood straight before us with Geikie Glacier and Creek before and Donkin and its glacier to our right. We could count opposite us, three great glaciers and several minor ones. Away beyond, to our far right, beautiful Purity stood above her neighbors, the emblem of her name.

Now at 7.45 commenced the real climb and we roped, passing as a start, around a bald cliff to the east as a short cut for the ascent of "Snow Dome," our first objective. This snowcap lies between the Asulkan Crest and the Geikie *Névé*—back beyond the Illecillewaet *Névé*—and is about 9,700 feet elevation. Hector said he had not heard of its being climbed previously. It is attractive as a climb in affording a variety of snow and ice work with the added interest of a huge snow cornice on the south side overlooking the Illecillewaet snowfield. Up, up we went on the north face of the snow pyramid. Our impression was that the snow slope was dangerously steep, Hector said upwards of 60 degrees in places, and were it not so early in the morning and on the cool side, we might not have gone up without incident. What a ceaseless plug, plug a steady climb on a steep snow slope is; one looks down, if at all, with a feeling of fitness to slide if forced to the opportunity, and looks up with the hope that his guess is correct that he can come down some other route than this.

Just as you round the shoulder of the dome at the crest of a snow-capped peak is probably the most interesting moment of the ascent. The expectancy of the panorama to be unfolded when, in a few minutes, you actually reach the top and can look over beyond, lends a quickening step and perhaps sometimes a careless hurry. On Snow Dome we had this thrill, but it was tempered with the knowledge that the opposite side was corniced and our steps at the crest were wary. On top a cold east wind was blowing and, notwithstanding the heat of the ascent—it was by now ten o'clock—we

found our rope quickly freezing and we got inside all the spare clothing we had. We ate our lunch with contentment and relish; were we not set high in the midst of a huge circle of famous peaks, the giants of the Selkirks, and were we not in sight of eight as famous glaciers, not to speak of the many smaller blue masses clinging over the steep cliffs? And in front of us lay the Illecillewaet Glacier and Névé.

After the last sandwich had been taken, there seemed to come that quickening thrill which brought the thought of the descent. A cornice! "Going over cornices is one of the most dangerous feats of mountain climbing," we had read on Sunday in George Abraham's "Complete Mountaineer," and we had seen with our glasses that the south face was corniced clear from the Geikie Crest to the great punch bowl hollow at Lookout. Could we get over, across or through? The first move was downwards towards Lookout, feeling for a suitable chance. The first time that Hector made a reconnaissance over the edge, we really began to think of our responsibilities as we anchored ourselves and the rope in a long line back over the crest, while he, on about forty feet of clear rope, crawled and squirmed out to the edge to look over. In the later similar operations, we gradually learned to let out the slack rope and advance it with caution ready for the sudden plunge if it came with the breaking of the cornice.

Down and back we trudged and clambered along the snow crest, feeling for the hidden place we hoped was there to be found. Once away down near the Lookout we got for a few minutes on real rock while we examined the chances for following around the cliff of the bowl of the *névé*. Then, back up the snow ridge again, making trial after trial, when suddenly, Hector's hand shot up as he hung over the slope, which told us he had found a place where for about thirty feet the

cornice had broken away and we could probably clamber down the snow face. We could—and did. It was an exciting operation, not without danger. There was upwards of forty feet of almost sheer snow face to be descended to arrive at the top of the sloping snow-talus which lay at an angle of probably 65 degrees.

Over we went, one at a time, working down the face, using footholds Hector had cut on his first trial trip down, and the rest holding and anchoring the rope above. The first two down carried the four cameras of the party and secured photos of the others coming over. The cornice in breaking, had left a good mass of fairly level snow at one side where we gradually assembled awaiting the downcoming of Hector who was last. We wondered how he would do it—would he leave his ice axe at the top, as an anchor for the running rope? Nothing so romantic did he do; he merely slid down the face with the axe and rope just about as one would slide down the side of a brick business block from the eaves and, to our amazement, landed on his two feet in the snow with an imperturbable smile.

So we got over, and with an almost fond farewell, strode down the easy side slope to the lower levels and out on to the *névé*, a thousand feet below. A short look back showed the alpine object lesson, that things frequently look more impossible from afar off than they really are. Then began the long trudge across the *névé* en route for Terminal Peak, the southerly shoulder of Sir Donald. We had hoped to climb this shoulder as part of our long day's work and would have done so, but, that when we arrived below it after our four-mile tramp across the snow-field, we were chagrined to find a sudden rain and mist come on, beginning to dangerously shroud it and the adjoining peaks and, discretion being the better part, we reluctantly gave it up and promptly started downwards and homewards.



C. H. Mitchell, Photo.

THE LAST SANDWICH

DESCENDING THE CORNICE



Threading our way along the crevasses and danger spots of the Illecillewaet Glacier we eventually brought up at Perley Rock, 7900 ft., and had our first drink of water for many hours. We unroped here at 3.45 p.m., and were surprised to find that we had been constantly on the rope since 7.45 a.m.—eight hours. By this time it was raining hard and steadily and we lost no time in clambering and glissading down the steep snow slopes below Perley Rock, some fifteen hundred feet to the right moraine near the foot of the glacier. Here, in order to save time, instead of struggling down through the gigantic boulders, we undertook to cross the face of the timbered slope to the couloir below Sir Donald, but this was “out of the frying pan into the fire.” It was an hour longer—it seemed five—and ten times wetter in the underbrush, until finally in desperation we waded down a small torrent bed which was momentarily becoming more swollen and, crossing at the junction of the large stream, finally got on to a pony trail, arriving at Glacier House, three miles distant, at 6.45 o’clock, with still three miles more to the home camp.

We could be absolutely no wetter. We might have been more hungry and more tired, but we could not have been more satisfied or happier than when, at eight o’clock we arrived in the main camp at Rogers Pass after a continuous sixteen hours of going from the Asulkan Camp in the early morning, over ten hours being on ice and snow.

SCIENTIFIC SECTION.

MODERN GLACIERS.

BY WM. S. VAUX.

[Authorized reprint from Vol. XXIV, No. 3 (July, 1907), of the Copyrighted
PROCEEDINGS OF THE ENGINEERS' CLUB OF PHILADELPHIA.]

The study of glaciers, including their present changes and the part they have taken in fashioning the earth's surface, may be broadly divided under two great heads. One deals almost exclusively with the science of geology, and embraces a consideration of changes in the earth brought about by the activity of glaciers which may have ceased to exist ages ago. The other treats of glaciers as they are found to-day, the properties of ice, the laws which govern formation, flow, and dissipation, and deals with physics and physical laws.

The second of these great branches will largely occupy attention in the present paper in explaining what a glacier is, illustrating its principal characteristics, and giving a brief summary of the history of glacier investigation. Lastly, the plan of observation on some of the glaciers on our own continent will be explained by which these movements and changes have been recorded, and some of the laws of glacier action again applied to new examples.

The popular conception of ice as a hard, unyielding substance is in fact totally wrong. Ice is really viscid, and will slowly yield to pressure if not intense enough to rupture it, but will crack and split if the pressure is suddenly applied or its direction changed.



L'aux, Photo.

ASULKAN GLACIER.
Showing Névé, Ice Fall, Tongue, and Moraines.

This is the case in compression, but the yielding to tension is very small, and is followed by a more or less complete rupture. Indeed, a mass of ice may be compared with tar, which, though solid and firm, is brittle under tension, but plastic under compression, and will change its form until the pressure is relieved. This property of ice may be considered the fundamental one which permits masses at high altitudes to assume the flow of a river and drain away into the warmer valleys below.

In general, it may be said that a glacier is a mass or stream of ice formed in regions of perennial frost from compacted snow, which moves slowly downward in a manner analogous to a river over slopes and through valleys until it melts away, owing to higher temperature at the lower levels, breaks off in the form of icebergs on the border of the sea, or avalanches over cliffs to the valley below.

It is only under favorable conditions that glaciers are formed—an average temperature below 32° F., a high yearly precipitation, and a climate which allows an accumulation of snow in excess of the amount melted, evaporated, or blown away. Outside the Arctic regions these conditions are found only at high elevations, and it is for this reason that with high mountain ranges and rugged peaks one mostly associates snow-field, glacier, and moraine.

Glaciers may be divided according to three principal types: *Alpine*, where the snow is at a considerable elevation on a mountain side, and the stream flows through a valley to the open slopes below. This type is the most widely known, and was first studied in the Swiss Alps, where the name was applied. *Piedmont*, where several alpine glaciers unite and spread out over the adjacent valley or plain; and *Continental*, where vast areas, or even entire continents, are covered. Examples of the third type are at present to be found only in the

Arctic and Antarctic regions, but in past ages they were more numerous and extended; the great ice caps over North America being excellent examples. It is with the alpine and piedmont types that we shall deal in the present discussion, as apart from being more readily accessible, they exhibit the glacier characteristics which are to be illustrated.

A glacier being a river of ice, its source is at a high elevation where snow falls throughout the year, and for a large portion of the time the temperature is below freezing. There being no melting, the snow becomes deeper and deeper and an indefinite accumulation would in time take place, were it not that pressure from the increasing load above and many changes of temperature close to the freezing-point begin the direct transformation of snow to ice without melting of the whole mass. Then begins the slow and constant motion or flow to the lower levels. More snow falls on the surface above, forming a vast field resting on the mountain-side, while below is a mass of solid ice—the birth of the glacier. This snow-covered portion is known as the *accumulator* or *névé*. Following the course of the ice-stream, a point is reached where owing to increased temperatures and lower elevation the accumulations of snow on the surface melt before a large amount has collected, uncovering the stream of solid ice, which becomes visible, and here the dry glacier begins. Below the snow line to the *tongue* or *snout* where the glacier melts away there is surface melting, and the phenomena of ice action may be studied in full view. This lower portion is known as the *dry glacier* or *dissipator*.

Glaciers may be simple or compound as they drain one *névé* into one valley, or are made up of a number of individual streams each filling a separate valley with a common snow-fields. Conversely, several *névés* may be drained by glaciers in valleys which finally join and form one ice-stream.



Vaux, Photo.

PLATE No. 1.—AVALANCHE, VICTORIA GLACIER.
The ice is here falling 2500 feet and forming a Secondary Glacier below.



Vaux, Photo.

PLATE No. 2.—CREVASSES, ILJECHELEWART GLACIER.

The crystalline structure of the ice composing a glacier is very different from that frozen in the ordinary way. The snow falling at high altitudes is usually of a hard spherical form, similar to hail, which is compacted together by pressure and slight temperature changes till it assumes a banded or stratified form of solid ice with a peculiar grain and structure which instantly distinguish it from lake or river ice. Near the tongue the grains become larger, but are crushed together and deformed as in a mass of marble.

The snow when it first falls exhibits no bands or stratification. Alternate melting and freezing and the deposit of dirt on the surface blown from cliffs form stratified layers of clean, dirty opaque, and clear ice, the bands of which dip at an ever-increasing angle as it descends. Near the tongue these bands become obliterated, the ice being of an even clear texture, interspersed with lines of dirt or faults formed by cracks in the ice which have afterward closed.

The beautiful coloring of pure glacier ice is universally noted, and also peculiar bandings of the clearer sections, which do not appear in the *névé*, but become marked in the lower regions, and disappear before the tongue is reached. These are known as *blue bands*, and their formation has long been under investigation. They are not equally marked at corresponding points in different glaciers and their position and direction do not appear to follow known laws. The suggestion of Prof. Louis Agassiz, that they are formed as a result of horizontal pressure in the ice similar to cleavage in slate, has been accepted for many years. Recently theories have been advanced to prove that they are analogous to strata in the ice, or that they are the result of a modification in the *névé* stratification.

Above the *névé* line, owing to absence of melting, the tendency is for the ice to become thicker and to bury rock or other substances which may rest on the surface.

Below this line the conditions are reversed; melting takes place which constantly removes the upper layers of ice, and the flowing motion below gradually brings these buried substances to the surface. It is for this reason that the upper slopes of glaciers are generally white and clean, while below they are often buried deep in débris.

Two of the most striking characteristics of glaciers are crevasses and moraines. Owing to the impossibility of ice yielding to tension except in a very limited degree, some provision must be made for uneven flow.

As the glacier flows over the rock-bed or reaches a space of increased incline, tension is exerted in the ice which causes a rupture. The cracks, but a hairbreadth wide at first, are enlarged by melting and changes of slope, till they may be hundreds of feet in length and many feet deep and broad. These are known as *crevasses* (Plate 2), and they are formed in the partially consolidated snow, in the ice beneath the snow, or in the dry glacier itself. Early in the season the crevasses are filled with snow, which later melts, and *snow-bridges* are formed. These are at first strong and solid, but soon melt away from below and form treacherous pitfalls for the explorer. Crevasses may run in any direction, and often form a maze on the ice surface through which it is hard to thread a way, and where the greatest caution is necessary. When these cracks occur at angles to each other pinnacles of ice are formed. Melting takes place on the four sides thus exposed to the air, and *séracs* are formed, named from a fancied resemblance to clotted cream. These often assume the most fantastic shapes after the erosion of wind and water has worn them away. (Plate 3).

Passing over an uneven bed the body of the glacier is first bent in one direction and then in the other. When the slope increases great openings are formed across the glacier which are known as *transverse crevasses*, as they



Vaux, Photo.

PLATE No. 3.—SÉRACS, ILLECILLEWAET GLACIER.



Vaux, Photo.

PLATE No. 4.—GLACIER TABLE, VICTORIA GLACIER.

usually occur nearly at right angles to the direction of flow. The ice at this point may form in great steps with crevasses between them. This is known as the *ice fall*.

When the slope is almost constant no crevasses are formed from this cause, but the more rapid flow at the centre than at the sides causes a stretching at this point and *marginal crevasses* result.

Again, crevasses may be found where a glacier after passing through a narrow defile spreads out into a wider space which allows it to expand laterally with a corresponding decrease in motion. The pressure of the ice behind produces a tension in the ice which forms *longitudinal crevasses*.

Between the main stream of the glacier and the bordering cliffs deep and broad openings similar to crevasses are almost always found. These are known as *bergschrunds* or *mountain crevasses*, and they may occur close to the rocky cliffs or several rods distant, a portion of the *névé* being closely attached to the rock wall.

At times narrow cracks or even large crevasses are filled with water which freezes and forms a solid mass. They are very noticeable on the dry glacier and are known as *dykes*. The ice so frozen is often composed of long crystals the axis of which is at right angles to the plane of the crack, or may be of the glacier form after having been subjected to pressure.

The walls of crevasses where there has not been much melting are often of the most exquisite turquoise blue, which deepens to black in the farthest depths. Frequently icicles are formed which hang row on row with silver-white or blue bands and wreaths. When the sunlight enters one of these chasms, every point and drop reflects the light, while deep pools of water make it seem like an enchanted fairyland. It has been said that only the unfathomable sea rivals this exquisite coloring and setting.

While not strictly connected with our subject, a peculiar phenomenon often noticed on the higher *névés* is *red snow*. This is, in fact, a vegetable growth in the snow itself, which at times covers many acres of surface. It is often covered with a layer of fresh fallen snow and its presence is not suspected until foot-marks or the scraping of the ice-axe uncover it. There are said to be several species, each with its own locality and limits.

The transporting power of glaciers, at one time seriously doubted, is now universally accepted. The immense amount of rock deposited in valleys and plains bears witness to the part played in the past, while the masses carried, polished, and ground at the present time show how the work of ages has been accomplished. All glacier-transported material is known under the head of *moraine*. There are two main divisions, indicating whether the material is fixed or is changing with the motion of the ice, and these are again classified according to their position relative to the glacier. If at the tongue, they are known as *terminal*; at the side, *lateral* or *marginal*; beneath, *sub-glacial* or *ground*; while two lateral moraines coming together when ice-streams join and flow as one are known as *medial* moraines. The amount of transported material varies greatly, some glaciers being almost free, and others so covered that they resemble plowed fields. The proximity of disintegrating cliffs or rocky walls from which masses break off produces moraines, while an absence of such cliffs forms a clean glacier, the tongue of which may not be buried. Moraines are often of great height and length, but generally of a triangular cross-section ending in a ridge with the masses of rock just at the angle of repose. Often they appear to be solid, but really rest on a stagnant core of ice which gradually wastes away, and the slow shrinking starts masses of rock and dust which avalanche down the sides. Large isolated rocks or *boulders* are usually found resting on the surface of the ice, firmly fixed on



Laua, Phot.

PLATE No. 5. SAND CONE, VICTORIA GLACIER



Laua, Phot.

PLATE 6.—MOULIN, ILLECHILLEWAET GLACIER.

the crest of moraines or resting entirely apart from the other *débris* in the valley bottom below. These are known as *erratics*, and they often show the results of enormous pressure by their polished and grooved surfaces. At times the rock in place is scratched and polished, or worn off in mounds which fancifully resemble the backs of sheep, and are accordingly known as *roches moutonnées*.

Moraine and crevasse make possible many minor glacier phenomena. A bed of moraine over a foot thick acts as a blanket and protects the ice below from the sun's rays. Thus many moraines are really of ice with a coating of rock. A large rock protecting the ice below while the surrounding surface is melted away rises on a pier until it may reach a height of several feet. Always tipping to the south, the rock finally falls, owing to the melting away of the pillar below, and the process is repeated. These are known as *glacier tables*. (Plate 4). When the rock is small the reverse is the case, and it sinks into a hole filled with water melted by the heat absorbed. A mass of sand collected at the foot of a water-fall in the ice gradually comes to the surface and a *sand cone* is formed, of a thin coating of sand and a core of ice. (Plate 5.)

The ice meltings find a way to the depths of the glacier through crevasses, but at more level portions, where there are no openings, small streams collect which flow on the surface until a crevasse is reached. These streams may assume considerable proportions; canyons are formed with potholes and caverns through which water rushes with great force owing to the smooth sides. At a crevasse the water leaps down in a *moulin*, or perhaps a hole carries it to the depths below. (Plate 6.) The water melted from the glacier collects in streams below the ice and flows on the ground moraine till it issues at or near the tongue. Great caverns are melted out as a result of the water or air currents, and

at the point where the stream issues a beautiful *ice arch* may be formed. (Plate 11.) In the spring these arches are often of great size, but later in the season the ceilings fall in.

Glacier water may be readily distinguished from that melted from snow by its gray, muddy character. This is caused by the suspension of a large amount of fine mud which has been ground from the rocks and cliffs. In the course of the stream this mud is deposited in flat places, and gradually fills up the lakes which often lie below glaciers. Further down the streams become clear and lose this characteristic owing to the filtering out of suspended material, but a small amount of mud always remains, and its presence is said to cause the vivid tints of the lakes, which when fed by glaciers often rival in coloring the ice itself.

The flowing motion of glaciers already referred to involves a most difficult problem in ice physics which is not yet thoroughly solved. No fewer than nine theories have been advanced to explain the phenomena observed. It is not within the province of this paper to attempt more than a brief description of phenomena, the obscure problems of the causes which produce the effects being left for those who desire to delve into them. The observed facts, however, show that the motion of a glacier resembles closely the flow of a river, except that it is much slower and only observable by the aid of instruments of precision.

As in a river, all portions do not move with the same rapidity. The surface moves faster than the bed, the centre than the sides, and where a bend in direction is met, the concave side lags till the convex assumes its proper place. Indeed, it may be said that no two parts of a glacier travel with the same rapidity, for at a broad, open space the rate is slow, while a narrow, deep gorge accelerates the motion till the ice is broken into rugged masses, owing to the enormous pressure exert-

ed. Again, the surface melting snow below the *névé* line tends to bring to lower portions to the surface, and in the dissipator there is a gradual motion from the centre to the sides. In the upper sections of a glacier the flow is least and increases to the *névé* line, where theoretically it is a maximum, and then decreases to the tongue. Where moraines and embedded rocks are not present the rate of flow is greater than where the glacier is heavily bedded in moraine or filled with rock.

These motions are constantly at work, but they do not act with the same speed at all times. Higher temperature may mean accelerated speed, and the summer flow has been proved in certain cases to be more rapid than the winter, and the day motion than the night, though the causes of these changes are not as yet fully understood. Over a series of years the rate of these motions is found to vary, increasing for a time and then decreasing, passing through many changes in the course of a century.

Varying climate, precipitation, and rate of flow are principal causes of glacier variation, which is now being investigated with great care. It is everywhere evident that in former times glaciers were of much greater extent than at present, and that there has been a decrease and shrinkage for many years. Valleys below glaciers, now covered with trees hundreds of years old, were in former times the bed of moving ice which bore down and deposited erratic and moraine. Lakes plowed out by immense force show where the ice masses once crushed together and then retreated and melted away. These changes depend upon the rate of flow of the ice, the amount supplied from the *névé* region, and the quantity melted away at the tongue. If more ice is supplied than is melted, the glacier advances; while if the melting exceeds the supply, the glacier retreats. Temperature, precipitation, and sunshine modify the result, so that many factors are at work to determine

whether a glacier advance or retreat. These changes are independent of the daily and yearly variations, though they appear to be the result of similar forces acting over longer periods of time.

Careful observation extending over years has shown that after a time of retreat the ice begins to thicken in the *névé* region, the rate of flow quickens, and a great wave of ice flows to the tongue, which advances over the space formerly left bare. The glaciers in one locality do not all change at the same time, but some may advance while others retreat. It is, however, believed that the same cause in the *névé* is applied to all, but owing to size, length, normal flow, and other conditions the effect does not become apparent at the same time. Advances in many glaciers have been noted at periods of about thirty-five years, and this interval is known as "Bruckner's period," though it can as yet hardly be considered as a fixed rule of glacier change except from theoretical considerations.

Prior to 1811 no general records of the variations of glaciers are preserved. In 1812 there was a general advance of all the glaciers of Switzerland, which reached a maximum in 1825. This is the greatest advance ever observed. A period of decrease then set in, not marked or universal, which was followed by a less decisive increase, which reached a maximum about 1850. Then followed a marked period of decrease, and in 1870 all the glaciers were positively retreating. From 1875 a new phase set in, certain glaciers began to advance and others to retreat. This condition continued till 1894, when decrease became almost universal, and has continued more or less positive in character till the present time.

An illustration of the apathy of thinking men in the middle ages is shown by their lack of interest in natural phenomena. Roman engineers built roads through Switzerland, traveled them for centuries, and bridged

and crossed glacier streams and even glaciers themselves with only the most remote references to their existence. The history of glacier investigation extends back barely more than two hundred years, for while Munster in 1544 and Schenckzer in 1707 advanced theories as to the structure and movements of glaciers, their ideas were crude and founded on wrong conceptions of actual conditions. DeSaussure in 1803 published in his "*Voyages dans les Alpes*" the first serious description of glaciers, based upon his own observations and deductions. At this time motion and variation were imperfectly understood, while until many years after it was thought that glaciers existed only within the confines of the Swiss Alps.

Charpentier in 1841 published his studies on the former great extension of the Rhone glacier from its valleys into the plains beyond, and this work drew to the attention of scientific men that problems of universal interest in glacier action remained to be solved. Hugli had lived in a hut on the ice in order to study the marvelous forces which were at work, an account of which he duly published. About this time Prof. Louis Agassiz, who had been occupied with zoölogy, turned his attention to present glacier action as a means of determining the past history of the earth. He saw that careful observation of present conditions would develop definite general laws which would apply for all time, and he set about to find the real nature of the movement of the ice-stream which had previously been assumed by observation of masses moving along on the surface. To him must be accredited the first scientific work in observing the movement of glaciers by means of stakes driven in the ice. Surface melting was unintentionally proved by all his stakes melting out of the ice and falling, but he persevered, living in a hut on the glacier, where he received many scientific men as his guests. His "*Système Glaciaire*," published in Paris in 1847, de-

scribes in detail the work, and is a classic in the literature of glacier investigation. As a guest of Agassiz, a physicist and surveyor, Prof. J. D. Forbes, first made the acquaintance of existing glaciers. He saw that with instruments of precision the work which Agassiz had laid out could be performed in days instead of years, and on the Mer de Glace he placed a row of stakes, and a month later proved the motion of the ice, and that it is greater at the centre than at the sides, resembling the flow of a river. With the subsequent bitter controversy as to priority of discovery we have nothing to do, but the laws laid down and the phenomena recorded at this period stimulated an interest in glacier study which has continued to the present day.

About this time Rendu, who had long been a student of glacier action, published the results of his investigations in "*Théorie des Glaciers de la Savoie*," in which he developed laws entirely independent of outside sources. The reason for motion and the real functions of moraines formed at this time the active problems for discussion, and many theories were advanced and argued, attributing glacier phenomena to different causes. Tyndall and Croll each developed theories of motion which attempted to reconcile observed facts with known physical laws, but all pointed to the importance of a systematic study of the subject with physical and mathematical considerations always in mind. This implied also a careful, painstaking observation of changes as they took place and a record compiled of all the data obtained. Prof. F. A. Forel, of Lausanne, realizing the value of such investigations, published in 1881 a memoir in which he laid down the fundamental laws of glacier variation and appealed to those interested in the subject to assist him in completing the records. In August of 1894, under the leadership of the late Captain Marshall Hall, the International Congress of Geology appointed a committee to systematically collect data and

record facts relating to glaciers and their changes. This is known as the Commission Internationale des Glaciers, and for a decade has collected data from all parts of the world and reduced it to a form for comparison. Bruckner, Richter, Finsterwalder, Forel, Reid, Hess, Russell, and many others have contributed to the general store of knowledge, by observation on glaciers themselves, deducting laws from the information received, or developing the mathematical considerations which are intimately associated. The systematic observation of over one hundred glaciers, situated principally in Switzerland, but distributed generally over the globe, will in time provide the data from which correct ideas of glacier phenomena may be deduced.

It must be borne in mind that the forces studied have acted for untold ages, and that the contributions of one observer or even one generation of observers taken singly will form but a slender basis upon which to weave ultimate results. Only by an intimate knowledge of the physics of ice, the changes in climate, and the results which these changes have upon existing examples will it be possible to correctly deduce the laws which have taken such an important part in preparing the surface of the earth for the habitation of man.

The foregoing outline of the characteristics of glaciers and the way in which they have been studied may serve as a prelude to a brief description of the conditions which form great ice-streams in Alberta and British Columbia, upon several of which measurements have been made. While these glaciers do not compare in size with those of Greenland, Iceland, and Alaska, they may yet be taken as average examples of the alpine type.

Excluding the territory which lies to the north of the Arctic circle, all the principal glaciers of North America lie within the great ranges of the Rocky

Mountain cordillera. These ranges, stretching from south to north along the Pacific coast, are well located for the formation of glacier streams on their western slopes. Mountains such as Lyell, Hood, and Rainier within the United States bear glaciers near their summits, but it is only to the north of the boundary with Canada that the conditions become truly alpine and glaciers exhibiting all the phenomena are to be found. The course of the ocean currents in the Pacific and the position of the mountain ranges near the coast are both favorable to the formation of glaciers of great extent. The Japan current, flowing north some hundreds of miles from the coast of California, gradually approaches the continent till the western shores of British Columbia and Alaska are bathed by its warm waters. Warm winds blowing eastward gather up the moisture and carry it inland, where the Rocky Mountain cordillera is crossed, here composed of four ranges—the Cascade, Gold, Selkirk, and Rocky Mountain. Each succeeding range from west to east is higher, and these moist, low-lying clouds lose their moisture on the western slopes, thus causing a heavy precipitation. This falls mostly in the form of snow, and supplies the *névés*, which in turn feed the innumerable glaciers of the district. Clouds in higher strata pass above the highest ranges, and later their moisture is deposited on the great wheat plains of Alberta and Manitoba.

Until the completion of the Canadian Pacific Railway in 1885 the glaciers of this region were practically unknown. Mackenzie in 1789, and Capt. John Palliser in his expeditions of 1857-59, with their many branch excursions under the leadership of Sir James Hector, naturally kept mostly to the valley levels far below the tongues of the largest glaciers, as their object was to find an easy route for a wagon-road between the Pacific and the plains to the east. But in order to meet the re-



Vaux, Photo.

PLATE 7.—ROCK "E," ILLECILLEWAET GLACIER, PARTLY BEDDED IN ICE,
JULY 17, 1887.
(Compare Plate 8.)



Vaux, Photo

PLATE 8.—ROCK "E," ILLECILLEWAET GLACIER, AUGUST, 1899. SHOWING
SHRINKAGE OF ICE.
(Compare Plate 7.)

quirements of railway engineering mountain passes had to be crossed, and thus glaciers which rival those of any other section in interest were brought within easy reach.

The most accessible of these lie close to the main line of the Canadian Pacific Railway at Glacier House, a station about 500 miles east of the western terminus at Vancouver. Several glaciers are within a short distance of this point, but the one most readily reached is the Illecillewaet, the tongue of which is but one and one-half miles from the hotel. Prior to 1883, when the pass bearing his name was discovered by Captain John Rogers, the foot of man had probably never trod its valleys, as the course was many miles from the usual route, following down the Columbia River. During railway construction the glacier was doubtless often visited by those stationed on the work, but no records were made until July 17, 1887, when our party, passing through, roughly mapped the tongue and made a photographic record of the conditions as they existed. (Plate 7.) At that time the ice completely covered the ground *moraine* as far as the ridge of boulders, among which alder bushes were growing. The slope of the ice at the tongue was very steep, and the proximity of alder bushes of considerable age close to the border proved that the ice had been in a maximum position for many years. The next year (1888) the Rev. Wm. S. Green spent some time in the district and noted that the glacier had receded somewhat from the year before. He daubed tar on boulders bordering the ice which are marked "T.T.T." on the map, and made a rough determination of the flow at a point above the tongue by means of stakes driven into holes. After twelve days a stake near the centre moved twenty feet, and at the side seven feet. These daily movements are greater than those recently recorded at similar locations when the glacier is evidently retreating.

In 1894, when we again visited this glacier, it was evident that retreat had taken place and changes occurred which we were then at a loss to account for. Our interest was again excited when in 1897 we found still greater changes, which resulted in yearly visits since, including the summer of 1906, and the preservation of careful records of what is taking place. (Compare Plates 7 and 8.)

These may be divided under several heads: "Recession and Advance"; "Rate of Flow"; "Topographical Map"; and "Photographic Record."

In glaciers similar to the Illecillewaet the recession or advance of the tongue between two dates is a simple matter to determine. Being almost free from morainal material, the tongue extends on an almost flat ground *moraine* and melts away to a point. From year to year this point moves to the right or to the left, but its position being readily found, the distance to range lines between marked rocks is easily obtained. The selection of these range rocks is a matter of great importance, for while the general tendency of the glacier may be to retreat, the winter advance may be sufficient to engulf the boulders and push them down to obliterate the marks entirely. The rock marked "C" on the map* has been used as a base from which to measure the changes in this glacier since 1898, but in order that no changes might take place in it a range line between "B" and "D" just touched the tongue the same year, and a careful comparison of angles at once makes any alteration in the position of these boulders apparent. Since 1898, and almost certainly since 1887, the glacier has receded each year, but records are available only since 1898, as shown in the following table:—

* The map here referred to was published with a paper entitled "Glacier Observations," by George and William S. Vaux, Jr., in 1907. See page 148, Vol. 1, No. 1., Canadian Alpine Journal.

*Illecillewaet Glacier.—Recession of Tongue of Ice
from Rock "C."*

Date of Observation	Distance Tongue of Ice to Rock "C"	Recession of Ice since Previous Year
August 17, 1898.....	60 ft.	—
July 29, 1899.....	76 ft.	16 ft.
August 6, 1900.....	140 ft.	64 ft.
August 5, 1901.....	155 ft.	15 ft.
August 26, 1902.....	203 ft.	48 ft.
August 25, 1903.....	235 ft.	32 ft.
August 14, 1904.....	240½ ft.	5½ ft.
July 25, 1905.....	243 ft.	2½ ft.
July 24, 1906.....	327 ft.	84 ft.

An interesting point is that the recession from 1890 to 1898, when the yearly record was begun, averaged 56 feet a year, while from 1898 to 1906 it averaged but 33.3 feet, or about three-fifths.

To determine the rate of flow of the ice on the surface at a line above the tongue a much greater length of time and more care are required. Many observers in Switzerland, and Rev. Wm. S. Green on this glacier, as previously noted, bored holes in the ice and planted poles at certain intervals, which required constant resetting to keep them in place owing to the rapid melting away of the surface. Recently steel plates about six inches on a side have been used, which lie on the surface and sink in slightly, thus securing a firm hold, and the motion over any stated period nearly indicates the motion of the ice below.

In 1899 a row of eight plates was laid out at a point about 1,300 feet above the tongue. On the high right *moraine* the upper end of a base-line 229 feet 5 inches

long was located, the lower end being further down on the same ridge. From both ends of this base-line all the plates could be seen, as well as most of the points on the ground *moraine* below the tongue. The centre of a very prominent tree far up on the cliffs at the left side furnished the other end of the line on which the plates were laid out, a light mountain transit at each end of the base-line giving the locations without measurement on the ice. After thirty-six days the positions of these plates were noted and the amount they had moved from the straight line measured by means of steel tape. These showed the maximum motion near the centre to be 6.79 inches per day, and the minimum near the right side, 2.56 inches.

These plates were again measured in 1900, 1902, 1903, and 1906, when it was found that but one remained on the ice, all the others having fallen into crevasses and been lost or rested on the border *moraine*.

The following table shows the total yearly motion, and the average daily advance from the period when the location was previously made:—

Illecillewact Glacier.—Table Showing Motion of Line of Plates, 1899 to 1906.

Number of Plate	Position of Plates on July 31, 1899	Distance Below Original Line on August 6, 1900	Daily Motion, 1899 to 1900	Distance Below Original Line on August 26, 1902	Daily Motion 1900 to 1902	Distance Below Original Line on August 28, 1903	Daily Motion, 1902 to 1903	Distance Below Original Line on July 12, 1906
1	On line	1044 in.	2.82 in.	3456 in.	3.21 in.	Lost	—	Lost
2	On line	1488 in.	4.00 in.	4446 in.	3.94 in.	Lost	—	Lost
3	On line	1716 in.	4.64 in.	4848 in.	4.18 in.	6216 in.	3.73 in.	On border moraine
4	On line	2112 in.	5.71 in.	Lost	—	Lost	—	10.200 in.
5	On line	2220 in.	6.00 in.	5850 in.	4.84 in.	7740 in.	4.87 in.	Lost
6	On line	2280 in.	6.16 in.	6312 in.	5.51 in.	8388 in.	5.65 in.	Lost
7	On line	2160 in.	5.84 in.	6504 in.	5.79 in.	Lost	—	Lost
8	On line	2040 in.	5.51 in.	Lost	—	Lost	—	Lost



Faux, Photo.

PLATE No. 9. TEST PICTURE FROM ROCK "W," 1899, ILLECILLEWAET GLACIER.
(Compare Plate 10.)



Faux, Photo.

PLATE No. 10.—TEST PICTURE FROM ROCK "W," 1906, ILLECILLEWAET GLACIER.
(Compare Plate 9.)

These motions have also been plotted on the map and show graphically the greater motion of the central portions, and that the right or concave side moves more slowly than the left or convex.

In the summer of 1906 a new row of six plates was laid out on the line of 1899, and after an interval of twelve days the maximum motion near the side was found to be 7.00 inches per day and near the centre 11.33 inches. A comparison of the summer motion in 1899 and 1906, when tabulated in the following schedule, shows that the motion of the glacier at the present time is greater than it was in 1899, although less than the results of Dr. Green in 1888 would indicate. What effect this will have on the position of the tongue and glacier outline time alone will show.

Table Comparing Summer Daily Motion of Plates on Illecillewaet Glacier, 1899—1906.

1899—THIRTY-SIX-DAY INTERVAL			1906—TWELVE-DAY INTERVAL		
Number of Plate	Ft. from 1906 Ice Edge	Average Daily Motion in Inches	Average Daily Motion in Inches	Ft. from 1906 Ice Edge	Number of Plate
1	187	2.56	Plate lost	92	1
2	415	3.90	7.00	276	2
3	520	5.51	11.33	532	3
4	668	6.77	9.75	727	4
5	760	6.06			
6	900	6.79			
7	956	6.16	10.25	1020	5
8	1220	6.00	8.85	1171	6

But one transit being available in 1906, the distances from the upper base-line ends to the plates were determined by means of a 12-foot stadia, the motions of the plates being of course measured with a steel tape. The very clear atmosphere made long sights satisfactory, but at times the vibration of the air, alternately cooled and warmed by the influence of the ice, made it necessary to wait a considerable time till this disturbance was removed.

Although a plotting of a map of the tongue and *moraines* of the glacier is a most important record of the conditions, but little need be mentioned here. The main points were determined by triangulation and the details sketched in with the aid of the transit and stadia. It may be noted that the conditions change most rapidly even within a few weeks. Streams break through, while others disappear; on the ice crevasses open and close and great walls of ice form where before there were level plains. The 1906 plates were laid out on comparatively easy surfaces. Twelve days later great crevasses had opened between them; one plate was totally lost and several of the others were found in almost inaccessible positions.

A continuous photographic record of the tongue of a glacier supplies one of the most accurate means of comparison known. While annual changes, unless very marked, can only be determined after an interval of a number of years, the slight advance of crevasses and *moraines* may be distinctly seen, and after a term of say five or ten years, sweeping differences may be noted. On August 17, 1898, a large rock marked "W" on the map was selected from which the annual test picture might be made. Yearly from that time, at almost the same date, photographs have been made, using the same camera, lens, and as nearly as possible the same field of view. The trees in the foreground have grown, but the tongue of the glacier is still unobstructed, and a



Fauy, Photo.

PLATE No. 11.—YOH0 GLACIER, FIELD, B. C.
Note the Ice Arch and Séraes.



Fauy, Photo.

PLATE No. 12.—WENKCHEMNA GLACIER, ALBERTA.
The Glacier is Encroaching on the Living Forest.

comparison of these pictures at intervals of three or four years proves conclusively the continued retreat and shrinkage of the whole mass. (Compare Plates 9 and 10.)

It would be wearisome to recount the similar work carried on on glaciers in the vicinity. The methods have been similar but varied to meet conditions.

The Asulkan Glacier, situated in the valley next to the Illecillewaet, receded since 1899, then advanced for a year, and the past summer (1906) was almost in the same position as in 1899. The summer rate of flow varies from 2.4 inches per day on the right side to 8.9 inches on the left. It bears large masses of *moraine* and appears to be more active than its sister in the adjoining valley. (Frontispiece.)

Further to the east, at the boundary-line between Alberta and British Columbia, the great Yoho Glacier at the head of the Yoho Valley offers many features, particularly a superb ice arch, often sixty feet high and broad, from which the Wapta River issues. (Plate 11.)

The Victoria Glacier, above Lake Louise, is formed from the masses which avalanche from the upper slopes of Mt. Victoria and fall 2500 feet to the secondary glacier below. The slope is very slight and the surface is so covered with a layer of *moraine* that the ice is obscured. Here glacier tables and sand cones may often be seen, while the surface characteristics are very marked. (Plate 1.)

In adjoining valleys the Wenkchemna and Horse-shoe Glaciers are of marked interest. The former is of the piedmont type, being fed from a dozen smaller streams on the slopes of the Ten Peaks. This glacier exhibits unusual features in that it is probably advancing slightly and from year to year pushing its *moraines* over the living forest which surrounds it. If this is the case, it is the sole example of many scores of glaciers in the district which is advancing. (Plate 12.)

Descriptive details may be multiplied indefinitely, as no two glaciers exhibit the same characteristics. What has been said will, I trust, give a correct and pleasant idea of this great natural phenomenon, which if it has been successful will more than repay for this humble effort.

STRUCTURES IN THE VICINITY OF ROGERS PASS.

BY E. M. BURWASH.

Any one who visits Rogers Pass and examines even cursorily the mountains which surround it, must be struck with the peculiarity which many of them possess, namely, a more or less perfectly pyramidal form. Mounts Sir Donald and Cheops will at once recur to the minds of those who have seen them as the most conspicuous examples. Mounts Avalanche and Macdonald are somewhat less striking instances. Mt. Hermit, viewed from the south, is a pyramid with its top missing. Another form characteristic of the locality is a long, somewhat sharp ridge, divided by transverse passes into separate peaks. As an instance of this, the ridge which includes Castor and Pollux, Afton and Dome and Mt. Abbott may be mentioned. Perhaps most impressive of all from its enormous mass and proximity to the railway is the great ridge which lies between the upper Illecillewaet and Beaver Valleys, bears on its shoulders the Illecillewaet *Névé* and forms the base from which Sir Donald, Uto, Eagle, Avalanche, Macdonald, and other mountains rise.

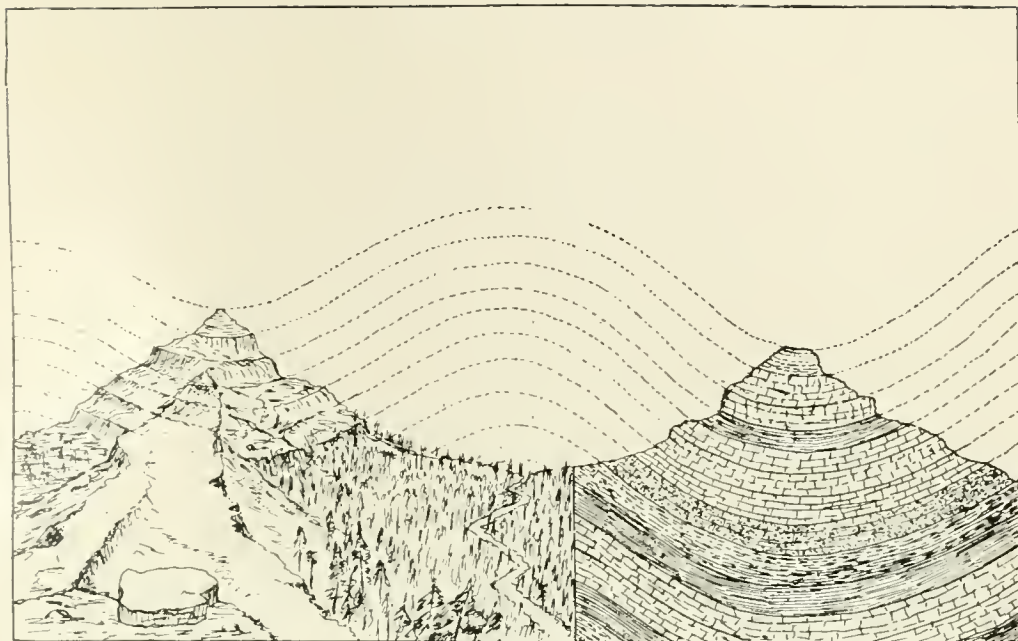
The recurrence of similar forms suggests a similar origin and on examination it is not difficult to see that all the peaks above mentioned owe their common peculiarities of shape to a similarity of geological structure. They are in fact the remainders of two denuded synclinal troughs.

A brief explanation of this type of structure may not be out of place in a paper of this kind. As is well-known the elevation of mountain ridges is the result of

pressure acting in a horizontal direction, which throws the surface layers of the planet, usually known as its "crust," into folds. To these the names of anticlinal and synclinal have been given, the former referring to arch-like forms and the latter to trough-like forms. By reference to the accompanying diagram (Fig. 1), it will be seen that the upper rocks of an anticlinal must tend to be fractured and pulled apart by being bent over the rocks beneath them, much as a stick is broken by being bent around one's knee. They are thus rendered looser in texture and more readily attacked by rain, frost and running water. On the other hand the upper part of a synclinal, near the centre, must be compressed as the anticline is stretched, closing the joint-cracks of the rock so that they are not readily penetrated by water, and causing the minerals of which it is composed to re-crystalize, which renders it much more durable. Thus it comes about that the synclinal, which one would naturally think of as forming a valley, as in newly folded regions it often does, comes at length to form a ridge, which persists long after the more friable anticlinal arch beside it has been carried away piecemeal but completely, leaving a valley to mark its site.

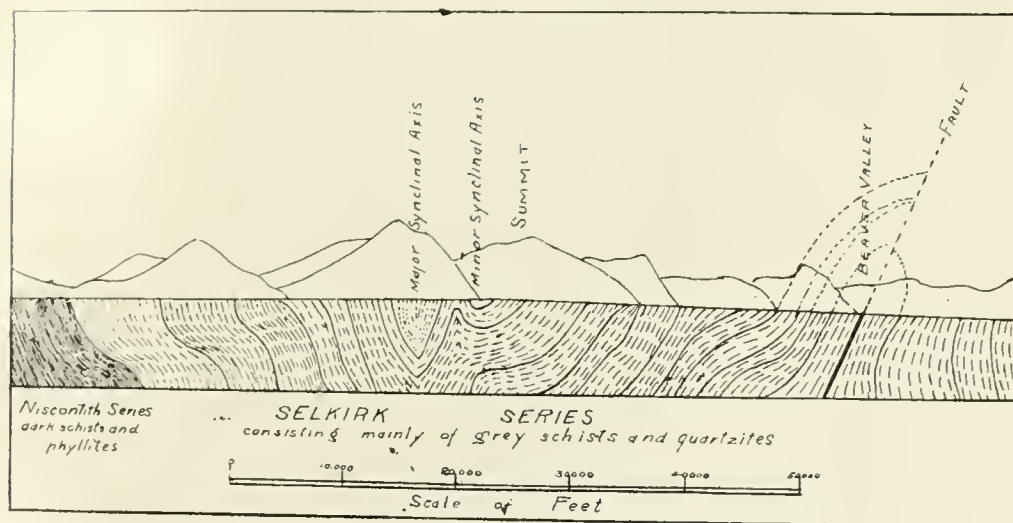
The ridges thus formed are divided transversely by joints, which serve as lines of attack for the eroding agencies, which enlarge them into V-shaped ravines, and thus the ridge is carved into a series of separate peaks each of which exhibits more or less perfectly the typical pyramidal form.

Dr. G. M. Dawson describes the geological structure about Rogers Pass as follows: "The great synclinal, which coincides with the highest part of the range, appears to have a transverse width of about thirteen miles The position of the main axis of this synclinal nearly corresponds with Loop Creek, on the railway, to the west of Glacier Station, while a subordinate synclinal trough runs immediately to the



E. M. Burwash, Sketch

FIG. 1.—DIAGRAM OF TWO SYNCLINAL RIDGES WITH ANTICLINAL VALLEY BETWEEN.
One Ridge shown in Perspective, the other in Cross-Section.



E. M. Burwash, Sketch

FIG. 2.—G. M. DAWSON'S SECTION OF GREAT SUMMIT SYNCLINAL, OF THE SELKIRKS

east of the same station and nearly coincides with the actual watershed in the pass." The main syncline is shown by Dawson in his section (Fig. 2) as a closed fold, that is, one in which the folding has progressed until the two sides of the trough have come in contact with each other, and which would, therefore, show on the surface near the axis the upturned edges of vertical strata. The subordinate trough he represents as open, in which case one would expect to find horizontal strata at the axis, or centre-line of the trough. It is the subordinate syncline whose remaining part forms the Sir Donald Range and the eastern section of the Hermit Range. It is transversely divided by the deep valley of Bear Creek, which separates the two ranges between Mounts Macdonald and Tupper. On the cliffs of Mt. Macdonald, as seen from this valley, or from the Hermit Range, (Fig. 3) the trough-like curvature of the strata may be very readily observed. The same structure may be seen in Mt. Sir Donald on viewing it from the Illecillewaet *Névé* in the direction of Lookout Mountain, a straight line drawn on the accompanying map from Mt. Sir Donald to Mt. Hermit represents approximately the position of the axis. It will be seen that it is roughly parallel to the general direction of the mountain-system and to the valley of the Beaver River. It passes through Mounts Macdonald and Tupper and also through Mt. Shaughnessy to the north-west of Hermit. All of these mountains together with Uto, Eagle and Avalanche, which lie a little to the west of the line, may therefore be assigned to the same type of structure.

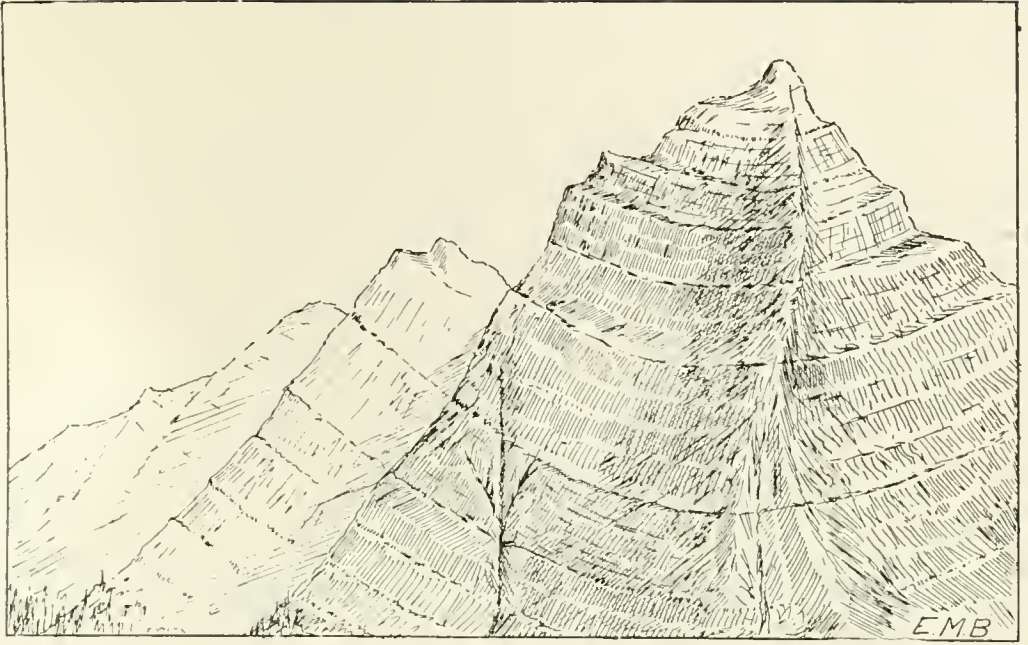
What appears to be the axis of the main synclinal is indicated by the line joining Castor and Pollux with Ursus Minor. It passes through or near Mounts Castor and Pollux, Dome, Afton, Rampart, Abbott, Cheops and Ursus Minor, the first six of which form a continuous ridge. Ursus Major lies to the west of the axis

and consists of tilted strata forming part of the western side of the trough, and exhibiting an interesting reversed curvature.

Of the mountains surrounding the pass, Rogers and Sifton are still unaccounted for. Neither of them lies upon a synclinal axis; they are on the contrary by a steep dip and curvature of the strata composing them easily recognized as belonging to the sides of the troughs. Mt. Rogers, viewed from the south (Fig. 4), shows very distinctly the curved dip of its strata towards the east, which flattens out to the horizontal in Mt. Hermit, on the axis of the syncline. Mt. Sifton is also a fragment of the anticlinal arch separating the two synclines, but the writer, in the absence of information as to the dip of the strata composing it, is unable to speak definitely as to which side of the anticlinal axis it lies. Its position, however, to the west of the anticlinal valley, would seem to indicate that it is part of the eastern edge of the western or main trough.

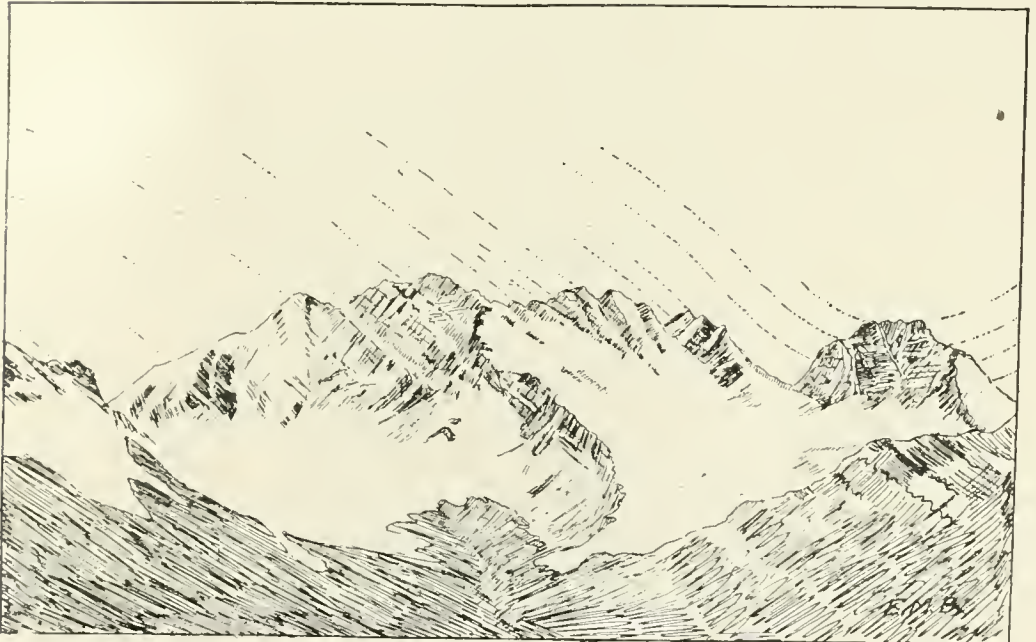
The reason why these portions of the folds away from the synclinal axis have proved so resistant is not quite as clear as in the case of peaks that lie in those axes. A suggestion may perhaps be drawn from the fact that the synclines themselves are not quite straight throughout their length, but curve horizontally toward the west as they extend northward. If the folding of the strata into troughs hardens the compressed upper part of those strata, so also the fact that a trough is itself bent must bring great compressive forces to bear upon the rocks forming that side of it towards which it is bent, that is, the concave side. The outer or convex side would also tend to be stretched and prove less resistant than the inner side.

The central point of the curvature of the strike of the syncline may be located somewhere near the valley of Bear Creek. A corresponding curvature in the valley of the Beaver River is noticeable at this point.



E. M. Burwash, Sketch

FIG. 3.—MT. MACDONALD SEEN FROM ROGERS AMPHITHEATRE



E. M. Burwash, Sketch

FIG. 4.—MTS. ROGERS AND HERMIT
With Stratification Lines continued to Illustrate Structure

Mounts Rogers, Sifton and Grizzly may, therefore, represent those parts of the parallel synclines which have been subjected to squeezing owing to the horizontally curved shape which the structures have assumed in this neighborhood. The fact that they all lie to the west of the axis of the minor syncline may be cited in support of this view.

Equally interesting and of more practical importance are the valleys which have been excavated in this double syncline and its central subordinate anticline. As mountains represent the less easily eroded parts of the terrane, so valleys represent the more easily eroded. The short valley extending from Bear Creek to the Illecillewaet, in which the summit of the pass is situated, has already been mentioned as marking the position of the central subordinate anticline. The map shows that the valley of the Asulkan Brook and the Rogers Amphitheatre may be regarded as continuations of it at either end. The former does not appear to coincide with the anticlinal axis, however, but lies somewhat to the west of it.

The depth of this summit-valley, some six-thousand feet below the higher peaks surrounding it, suggests a more powerful erosive agency than the small brooks which now traverse it in opposite directions from the summit, and its continuity in size from end to end suggests that it was the work of a single stream which once flowed throughout its length, and not merely due to the lowering of the watershed between the present brooks.

If we can imagine the gorge between Mounts Macdonald and Tupper filled up, it is evident that the waters from what is now the upper part of Bear Creek, and from the central mass of the Hermit Range, would flow westward through the Illecillewaet Valley, and some considerations render it probable that this was once the case. If so, the greater amount of water flowing through it would account for the deep and clean-

cut nature of the summit valley. Bear Creek must then have been confined to the eastern slope of the Sir Donald Range, but being situated at the point where the curvature of the synclinal made its eastern side most easily eroded, and discharging into a valley much lower than the summit valley, it was able to extend its headwaters westward more rapidly than the other streams on the same slope, gradually lowering the watershed and finally drawing off to the Beaver River what were previously the headwaters of the Illecillewaet. It has now cut its bed across the summit valley at a point so far below its former level as to reverse the direction of flow for a short distance in this valley, has left the Rogers Amphitheatre, once the upper part of the summit valley, as a hanging valley high up on its northern slope, and has extended its headwaters to the heart of the main synclinal between Mounts Cheops and Ursus Major. The Illecillewaet, thus decapitated, continued to deepen its valley below the junction of the streams from the Vaux, Illecillewaet and Asulkan Glaciers so that the summit valley itself is now being left at a higher level, and presents the appearance of a hanging valley as seen from the bed of the Illecillewaet a short distance to the west of Glacier House.

That Bear Creek has invaded the territory of the Illecillewaet, and not the reverse, seems proved by the much fresher appearance of the gorge between Mounts Tupper and Macdonald, with its precipitous sides and hanging valleys, as compared with the upper Illecillewaet valley which has sides of much longer slope and tributary streams like Cougar and Loop Creeks whose valleys are cut down to the level of the Illecillewaet itself and are very deeply excavated for some distance above their confluence with the main stream.



MOUNTAIN CLIMBING FOR WOMEN.

BY MARY E. CRAWFORD.

If for the sake of argument the question "Should women climb mountains?" were brought up it would be found exactly one hundred years behind the times.

In 1809 the first historical mountain ascent by a woman was made when Maria Paradis was taken to the summit of Mont Blanc by Jacques Balmat. Sad to say, her motive was not of a very high order, the excursion being made entirely for the mercenary one of personal gain. Neither can she be said to have "climbed" the mountain as she was literally "taken" by Balmat and hauled up like a sack of potatoes. "But," she said, "thanks to the curiosity of the public I have made a very nice profit out of it, and that was what I reckoned on."*

From this time on, the possibility of making ascents seems to have found favor in the eyes of the more adventurous women, until, to-day it is doubtful if any woman who has climbed over 10,000 feet could make one cent out of the erstwhile profitable public curiosity.

In 1834 a Bavarian Princess ascended the Mit-taghorn, 10,328 feet. In 1838 Mlle. D'angeville ascended Mont Blanc. In 1863 Mrs. Watson was one of the party which conquered Balfrin, 12,500 feet. In 1864 Miss Lucy Walker ascended the Balmhorn, 12,176 feet. In 1868 as recorded by Whymper in his "Scrambles in the Alps," a young woman of the Val Tournanche arrived within 350 feet of the summit of the Matterhorn, the mountain being as yet unconquered. In 1870

* M. Durier's "Le Mont Blanc."

Mrs. Brevoort stood on the summit of the Meije, 13,026 feet. And so on to the present day, when the names of Miss Peck, who so recently scaled Huascaran in the Andes, a peak over 24,000 feet high; of Mrs. Bullock Workman, who with her husband has made first ascents of the giants in the Himalayas; and of Miss Benham, with about 200 ascents to her credit, prove that women also are making history in the alpine world.

Ordinarily, the idea of mountaineering as a recreation only occurs to those who live in the vicinity of mountains or whose business takes them there, or in whose family the love of mountaineering is inherited. But now that alpine clubs exist which admit women to membership, and which, by assuming all responsibility of equipment at a reasonable rate, place the mountain summits within reach of all, there is no reason why every woman may not seriously ask herself "Why should I not spend my holiday this year in the mountains?"

There is no recreation which, in all its aspects of surrounding and exercise, will bring about a quicker rejuvenation of worn out nerves, tired brains and flabby muscles than mountaineering. It is for women one of the new things under the sun and every fresh mountain is a new delight. Ennui has no place in the vocabulary of the woman who climbs, the words which rout it are enthusiasm and exhilaration. Diseases of the imagination cannot be discovered anywhere on a mountain side, where Nature asserts herself so grandly to the consciousness and with such insistence that the "ego" with its troubles sinks out of sight.

In the actual climbing the whole attention is so absolutely concentrated on the business in hand that every worry is put to flight and nothing is of any moment beyond reaching the top of the mountain. The therapeutic value of this one feature alone is inestimable.



Don Forrester, Photo.

LOOKOUT POINT

CROSSING BEAR CREEK

Take the woman whose usual occupation is a sedentary one—whose daily life is one of routine in the office, the school-room, the sick-room; and who is constantly giving out to others her nervous energy. Put her on the train and send her to the mountains. The imperfect glimpses of this peak and that gorge are small foretastes of what she is going to enjoy, for no one knows the mountains who sees them only from the car window. Now she has reached her destination and is left to exchange for the rattle of the train the music of rushing torrents, to breathe in the keen pure air which finds its way to the very last air-cell of her lungs, and to rest her tired eyes on beauties of form and color never before imagined. Every influence by which she is surrounded is alterative in its effect.

She spends a night under canvas and feels the first pangs of healthful hunger to which she has long been a stranger. And now—suitably dressed, and with feelings of excitement and wonder—she waits with her party of guides and companions the word which starts her off on her first mountain ascent. Nervous about the new experiences to come? Perhaps—for the almost invariable reply given by the woman to whom is presented the new idea of mountain climbing for herself, is—"Oh! I never could climb for I am always dizzy when at a height—I cannot look down—I should be afraid." But there are guides, men of experience, whom she has only to obey, and who will show her the right thing to do; there is the rope, tested and strong; and she has her alpenstock and her nailed boots whose efficiency against slips she has already experienced. She knows that every precaution against danger is provided and perhaps remembers Mrs. Jellyby's remark that "You may go into Holborn without precaution and be run over; you may go into Holborn with precaution and never be run over. Just so with"—the mountains, to change the quotation. Then there is the company of

former novices who also had always been dizzy at heights, but who now ascend their peaks without a qualm and with confidence.

There is another factor which she has not taken into account, but which comes to her as surely as there is a cliff to climb or a torrent to pass, and that is the infallible instinct of self-preservation. She is going to know herself as never before—physically, mentally, emotionally. And so she starts out, gains confidence with every step, finds the dangers she has imagined far greater than those she encounters and arrives at last upon the summit to gaze out upon a new world. Surely not the same old earth she has seen all her life? Yes—but looked at from *on top*—a point of view which now makes upon her mind its indelible impression.

This woman returns to her round of daily duties in the workaday world—but she has only to close her eyes for a second and she is transported to her mountain top. Brain fag? Nervous exhaustion? Asthenic muscles? They have lost their dread meaning. Time cannot drag now, for to the mountaineer “the year passes quickly looking back and looking forward.”

Not many books on athletic sports for women—if there are any—devote a chapter to mountain climbing; perhaps because the idea is a new one, or perhaps because it is only a short time in the year that can be given to it by the average woman, while other forms of physical exercise can be practised more continuously. Beyond presenting the idea, however, books cannot do much to teach the “knack”—it can only come by experience. Preparation for the climb can be made by following these more every-day exercises and, viewed in this light, they take on a fresh interest. The daily physical drill has an object now, and every long walk leads to the mountains. Rowing with the sliding seat has been recommended as the best exercise for training for mountaineering—but for those to whom this is out of

the question the Japanese method of individual muscle training is excellent; and walking every day and in all weathers, with perhaps a pedometer to add zest, is best of all. Many women take no previous training beyond this. Mrs. Bullock Workman who, as she says of herself, is not a light weight, made ascents of over 16,000 feet in the Himalayas without any, and her highest and hardest work was accomplished in the low levels and moist atmosphere of Ceylon and Java. She recommends for those who wish to reach the higher peaks, a previous residence of a few weeks at 11,000 feet.

The ambition of the average woman, however, will not lead her beyond the more easily obtainable ascents, and she can almost disregard any fears of the effects of high altitudes. Mountain sickness does not usually attack its victims under 12,000 feet, and many attain far greater heights than this without any untoward sensations. Climbing is for the stout woman as well as the thin, and while it is the rule to lose weight during the period of making mountain expeditions, the normal equilibrium is soon gained. Stout and thin alike find themselves in much better proportion than before.

Any woman who contemplates this form of recreation, and who has any fears as to her physical ability, should be properly examined first. Should she be below the average, however, she has only to think of Switzerland—the Mecca of the invalid, among whose heights are to be found sufferers from diseases of every system of the body—circulatory—respiratory—nervous. These find in that wonderful air and beautiful environment their restoration to a large degree and, knowing that our Canadian mountains possess the same power, she can confidently expect like results.

The following data of physical characteristics and personal experience have been gathered from nine women who have made more than two ascents of over

10,000 feet. These follow their daily occupation at sea-level and in the prairie provinces, and include teachers, nurses, housekeepers, stenographers.

(a) Height ranges from 5 feet to 5 feet 9 inches.

(b) Weight ranges from 98 lb. to 140 lb.

(c) State of appetite while climbing—in all cases never falls below very good.

(d) Ability to sleep between climbs—very good except in two cases, these being influenced by temperament.

(e) Temperament—classification of: Energetic or Indolent, Excitable or Deliberate—while none acknowledge to indolence, every variation under the other heads is given, from highly strung and extremely excitable to very calm and deliberate. Dizziness at heights was felt in two cases on first climb but not subsequently. *All* unite in asserting the beneficial effects experienced.

The following are extracts made from general remarks in the list of questions sent out. "Mountain climbing is a splendid cure for nervousness."

"From various climbs during five summers I believe that any woman with fairly sound organs can do mountain climbing with very great benefit to body and mind. I am convinced that making a fairly dangerous climb, where every sense must be alert and cool, makes a woman more fearless in attempting difficult tasks in her ordinary life. The ideas gained of the beautiful and sublime cannot be valued."

"In my experience I have found, that when tired, there is a mental exhilaration which supplies new energy; and in time any feeling of fatigue departs so as to allow of finishing the trip with no ill effects whatever."

"I lost weight during the week of climbing, but never felt better in my life."

And so the woman goes back to her tasks revived. For the teacher new lights have been thrown upon history, literature, geography or mathematics. The

artist and writer have found a mighty inspiration. The student of natural history has fresh specimens to classify. The nurse need not rack her tired brain for material to while away the heavy hours of pain for her patient—she has a fund of thrilling and amusing anecdotes to give out of her own experiences.

There is a field of interest in the mountains to satisfy every branch of mental enquiry. And for the body? When the mountaineer's friends one and all greet her with the exclamation "How well you are looking, I never saw you looking better in your life!" she knows that she is the happy possessor of the beauty of health gained from her sojourn among the heights.

OBSERVATIONS OF GLACIERS.

BY HARRY FIELDING REID.

The active explorations which the members of the Canadian Alpine Club are carrying on in the little known regions of the Canadian Rockies and Selkirks give them an opportunity of collecting important observations bearing on the conditions of the glaciers. I fully realize that the charms of mountain climbing require no special inducements, and, to change an old adage, that climbing is its own reward; but the addition of a specific object to the general pleasures of mountaineering will add much to the interest of a summer's outing. The establishment of a Scientific Section in the Canadian Alpine Journal indicates an interest in scientific matters on the part of its members which will certainly lead to the collection of important information regarding the condition of the glaciers. The extension of the glaciers is continually varying and therefore observations which may be made in the future will not take the place of those which might be made now. All kinds of observations could be made, from those of a casual character to carefully conducted experimental studies, such as those of the Messrs. Vaux, Professor Sherzer, and of Mr. Wheeler; but those which can be most easily made by exploring and climbing parties are observations on the changes in size which the glaciers are undergoing.

The different parts of a glacier are not independent, but are closely related to each other. In glaciers which are not varying in size the annual accumulation of snow in the reservoir above the *névé*-line, equals the annual melting of the ice in the dissipator below it; and these are each equal to the ice flowing through a section across the glacier at the *névé*-line. Anything which

throws this general relation out of adjustment will produce variations in the size of the glacier, but the changes may not become evident until some time later. For instance, a number of years of increased snow-fall will cause a more rapid flow of ice into the dissipator, and the greater velocity thus acquired will carry the ice a greater distance before it is entirely melted; but the advance of the end may not occur for many years after the increased snow-fall. On the other hand a great increase in the rate of melting may produce an immediate retreat of the end of the ice. Although much study has been given to this aspect of the subject, a detailed relation between climatic changes and the size of the glaciers has not yet been fully worked out, and observations are of great importance.

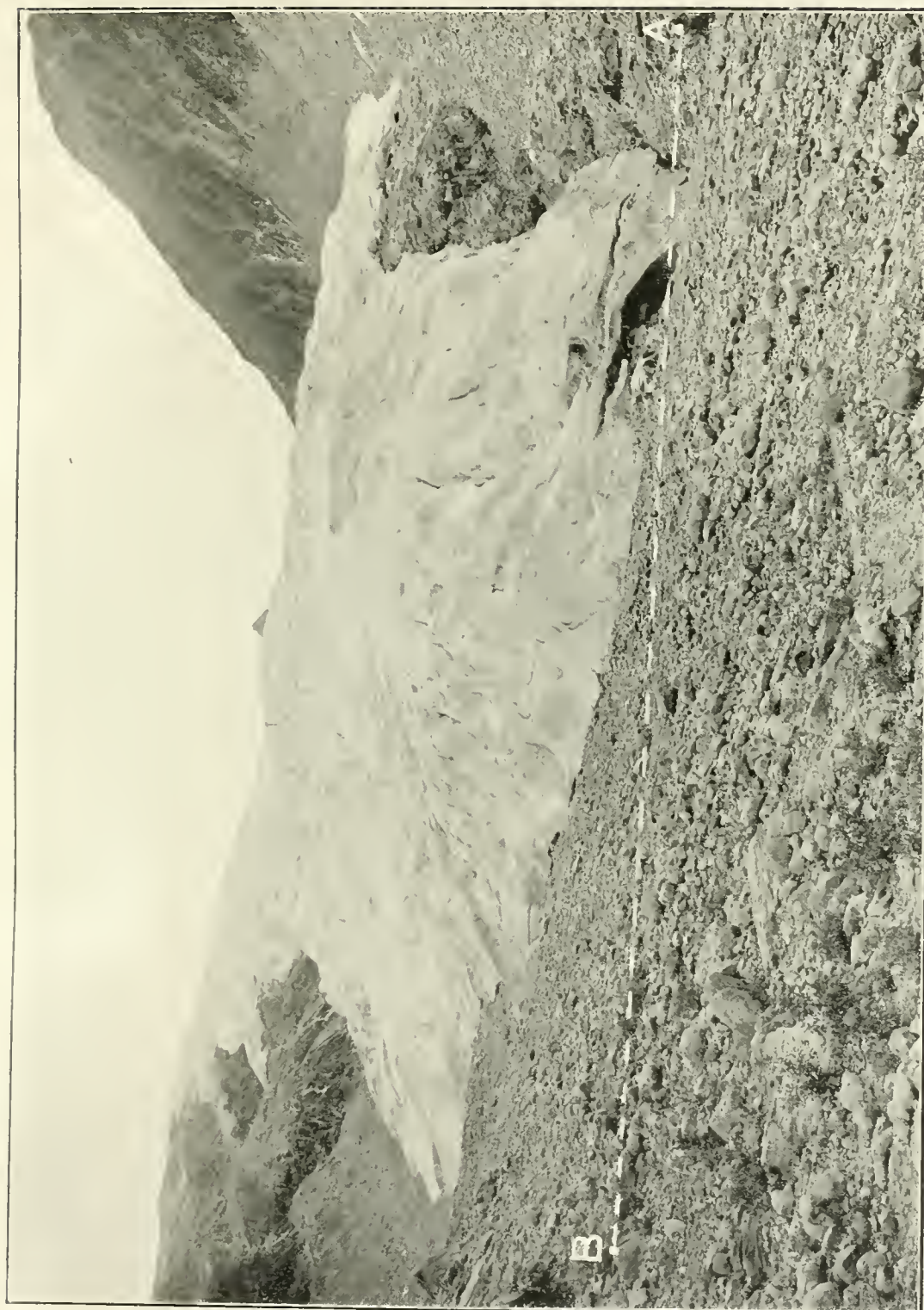
An increased snow-fall will be followed immediately by a lowering of the *névé*-line and *vice-versa*; and observations on this point would indicate before hand a future advance or retreat. There are two ways in which such observations can be very easily made; by simply determining the altitude of the *névé*-line with an aneroid, or by means of the very excellent maps which the President of the Club and his able assistants of the Dominion Survey have made of many Canadian glaciers. A photograph of the *névé*-line, showing its relation to the surrounding topography, could also be used to determine the changes by comparison with photographs taken in previous and future years. These observations should be made as late as possible in the summer in order that the position of the *névé*-line may be determined after all of the summer's melting has taken place. There are general methods of determining the average height of the *névé*-line, and these special observations would determine its variations.

Observations on the conditions of the ends of glaciers will reveal directly the advance and retreat. There are many ways by which the position of the end

can be determined; the simplest is by measuring the distance of the ice from a boulder; which can be marked or which can be recognized from its size and shape. The objection to this method is that the end of the glacier varies so much in shape that the changes of the point opposite the boulder may not represent the true variations; and, besides, the ice may advance over the boulder and the point of reference be lost. Another very simple way is to select two points, A and B (figure 1) on opposite sides of the valley, a little below the end of the ice, and then measure the distance of the ice from the line connecting them. These points should, of course, be marked, or should have such special characteristics that they can be recovered. A map can easily be constructed of the glacier's end by measuring the perpendicular distance of a number of points at the end of the ice from the line A B.

A third method, also very simple, can be carried out with a compass. Select two stations, as in the last method, except that they might with advantage be at a greater height above the valley floor; and from each station take compass bearings on the other and on various points at the end of the ice. These bearings can then be plotted on a sheet and a map of the glacier made. It is necessary to know the distance between the stations; this may be determined by auxiliary compass triangulation from a measured base; or may be estimated, of course, with a less degree of accuracy. Instead of using a compass a small plane-table could be used with a distinctly higher degree of accuracy. A small board 10 to 12 inches can be fitted upon a camera tripod, and with a small peep-sight alidade a very fair survey of the end of the glacier can be made from two or more stations. This would require a very little additional weight to be carried and would yield very interesting results.

54



SHOWING BASE-LINE FOR SURVEY OF FORE-FOOT OF GLACIER

Perhaps the simplest method to be used in the field is by photography. A single photograph showing the relation of the end of a glacier to the surrounding topography is useful, and will indicate, in conjunction with future photographs, even when not taken from the same spot, whether the glacier is retreating or advancing; but it will not give quantitative values. Two or more photographs, however, taken from the stations A and B, with a few auxiliary bearings, will enable a fairly accurate map of the end of the glacier to be made by the methods of photographic surveying. The additional observations that are needed are: the distance apart of the two stations, and bearings from each station on the other and on two points in each photograph. These bearings could be obtained with a compass or by means of a simple plane-table. It will frequently happen that persons are in the neighborhood of a glacier without the skill or without the means of determining the distance between the stations and the bearings required, but this should not deter them from making their photographs. Let them select two stations, placed somewhat as A and B in the figure, and so situated as to give good views of the end of the ice; and let them take photographs from each station. The stations should be described or marked so that they may be recovered in the future. These photographs will be quite valuable, for some future expedition to the same region may determine the proper bearings, and then the earlier photographs could be used to plot in the end of the glacier at the time they were taken. Any ordinary camera can be used, but one precaution should be taken, namely, to hold the camera level when taking the picture; a small circular level attached to the camera is very useful for this purpose.

The determination as to whether a glacier is advancing or retreating by the simple examination of its end is not always satisfactory, but occasionally definite

results may be obtained. The slope at the surface of the ice of an advancing glacier is usually fairly steep, and that of a retreating glacier fairly gentle. Sometimes an advancing glacier is invading a forest or advancing among bushes or overturning stones; these symptoms are, of course, unmistakable. A retreating glacier usually has a broad area in front of it upon which plant life has not taken hold, and sometimes the appearance of the ground immediately in front of the ice shows that it has very recently been uncovered; sometimes detached masses of ice protected by *moraine* material, or recently deposited *moraines* are found in front of the glacier, giving a certain indication of retreat.

It is not only important that observations should be made, but it is equally important that they should be recorded; and I therefore recommend that a special committee of the Canadian Alpine Club be appointed to take charge of this information, and to publish an annual report in this Journal. Copies of photographs, with the accompanying data, and all observations which may be made on the conditions of the glaciers, should be deposited with the committee. There is an International Commission which publishes annually a general account of the variations of glaciers in all parts of the world. This commission was appointed by the International Congress of Geologists at Zurich in 1894 and reports regularly to the Congress, which meets every three or four years. Mr. Douglas W. Freshfield represents Great Britain and its colonies on the commission, which would be very glad to receive more information regarding the variations of the Canadian glaciers.



A. O. Wheeler, Photo.

ILLUSTRATION No. 1.
From View-Point 79.3 Feet South of Rock No. 1—1908



A. O. Wheeler, Photo.

ILLUSTRATION No. 2.
From View-Point 6½ Feet Nearer Ice than the Vaux Marks of 1902-1908

MOTION OF THE YOHO GLACIER.

BY A. O. WHEELER.

At the close of the Club's observations of the Yoho Glacier on July 17th, 1907, a row of metal plates was, for the second time, set out across the ice forefoot, at relatively the same position as in 1906, and their relation to the base A-B* obtained by angular readings.

On July 1st, 1908, the glacier was visited and observations made similar to those of the two previous years. The results are set forth in the accompanying tables.

To Obtain Rate of Flow.

Angles were read from the respective ends of the base A-B upon the plates in the new positions in which they were found. None were missing. The computed results are as follows:—

Table Showing the Motion of Plates Set on the Yoho Glacier.

Plate	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
<i>Movement between July 15th, 1906, and July 17th, 1907</i>						
Yearly Motion	29 ft.	74 ft.	89 ft.	124 ft.	134 ft.	124 ft.
Daily Motion	0.95 in.	2.43 in.	2.93 in.	4.08 in.	4.41 in.	4.08 in.
<i>Movement between July 17th, 1907, and July 1st, 1908</i>						
Yearly Motion	20 ft.	43 ft.	112 ft.	115 ft.	127 ft.	127 ft.
Daily Motion	0.69 in.	1.48 in.	3.85 in.	3.95 in.	4.37 in.	4.37 in.

* See map of ice forefoot in 1908 issue of the Canadian Alpine Journal (Vol. 1, No. 2, opp. page 274).

On comparing the tabulated results, a slight decrease will be found in the movement of all the plates excepting No. 3 and No. 6. In the case of No. 3, it will be remembered by those who have read the 1908 Journal that on July 17th, 1907, this plate was found lying in a shallow crevasse, and, on that account, the motion may have been retarded, or the plate thrown backward at the time the crack opened.

Plate No. 6 was set 84 feet nearer the base A—B than the previous year. It would thus be closer to the greatest volume of the ice, the point of highest specific gravity, and the increased movement be accounted for.

Taken as a whole, the observations for the two years give satisfactory comparative results over the part of the ice forefoot where the greatest volume is located. In conjunction with other observations and measurements, the results point to a diminution of the volume of the ice, and a consequent retreat of the forefoot.

For Advance or Retreat.

Measurements were taken, as in previous years, from rocks Nos. 1 and 2, and from the Sherzer Rock to the nearest ice. The results for the several years are as follows:—

Table Showing Measurements to Nearest Ice.

Year	From Rock No. 1 Left Side of Stream	From Rock No. 2 Left Side of Stream	From Sherzer's Rock Right Side of Stream
1904	—	—	79.4 ft.
1906	27.5 ft.	36.6 ft.	79.6 ft.
1907	35.8 ft.	43.8 ft.	123.0 ft.
1908	72.3 ft.	104.4 ft.	138.5 ft.

Distance from Rock No. 1 to Rock No. 2 = 55 ft.



A. O. Wheeler, Photo.

ILLUSTRATION No. 3.
From Rock No. 2—1908.



A. O. Wheeler, Photo.

ILLUSTRATION No. 4.
From Rock No. 2—1906.

The measurements show a slow but steady retreat all along the line, although, owing to the change in shape of the front, the differences in the measurements are not uniform. The maximum for the three years, 70.8 ft., is at Rock No. 2. Here a spur of ice has broken off and melted, giving a snub-nosed appearance, where formerly a tentacle reached out. On the right side of the Yoho River, the recession seems to have been about one-third of that for the previous year.

Annual Changes in Formation of Ice Forefoot.

Photographs were again taken from view-point 79.3 feet south of Rock No. 1, from view-point $6\frac{1}{2}$ feet nearer the ice than the Vaux marks of 1902, and from Rock No. 2. (See illustrations Nos. 1, 2 and 3.)

Comparison of these with the illustrations given in the 1908 issue of the Journal (Vol. 1, No. 2; opp. page 274) will show a very marked recession of the ice.

Illustrations Nos. 3 and 4 show the photographs taken from Rock No. 2 for the years 1908 and 1906 with the same camera. The change in the two years is here very marked, particularly the uncovering of the floor of the valley near the edge of the stream. These two photographs illustrate very forcibly the diminution of the volume of the forefoot. The change is noticeable in the greater extent of cliff visible above the ice at sky-line. They point not only to a recession, but to a large decrease in the thickness of the glacier near its end.

The observations and measurements will be again made during the summer, and, in view of the heavy snowfall last winter and the late spring, the results will be of much interest.

BOTANICAL NOTES.

OUR ALPINE FLORA.

BY B. R. ATKINS.

It is a pretty general fallacy that the Tropics boast the most beautiful flora, and that, to see superb sights of floral coloring, one must of necessity go to equatorial countries for the purpose. Such, really, is not the case. Of course, there are some truly magnificent flowers there, as the Epiphytal Orchids, Poincianas, Lagerstræmias, etc., but their grand coloring is lessened by their general infrequency in the green, ever-green setting of an almost impenetrable jungle, where nearly every plant is tree-like.

Strange as it may appear, the coldest flora is, humanly, the most beautiful; and close up to snow-line is the true home of floral beauty, both in instance and mass of coloring; and this strange fact, so easily demonstrable, is just as easily explained. It would take up too much space to tell the whole story of how plants came to be, and how, first, of one great family, they separated and divided into many and various ones. We must accept something for space's sake, and we can begin with the basal fact that plants live, and that their life aims are food and perpetuation. The different shapes and colors we see are means to these ends. In a word, it is adaptation; and that means survival. Primarily yellow, simple and regular, they advanced according to necessity into white, red, blue, purple and variegated colors; and from simple, open disks, to bells

and sacks and cornucopias. This with the purpose of attracting their insect visitors and rewarding them with the nectar kept for them alone. But, wanting some return for this display of charm and jealous provision of sweet reward, they secure their fertilization by elaborated methods of mechanism which excite our scientific admiration and wonder. The simpler plants attract attention and secure fertilization by brilliant coloring, as our water-lilies, poppies, mallows, etc., while higher plants dispense with it, as the sage, mint, etc., for more complex but scientific means of pollination. This progression means variation, and that, different families; yet even in the members of one family, as the parent buttercup, progression may be seen in its children, the columbine, larkspur and monkshood, all, in adaptation to their special circumstances, ahead of their comely, simple mother.

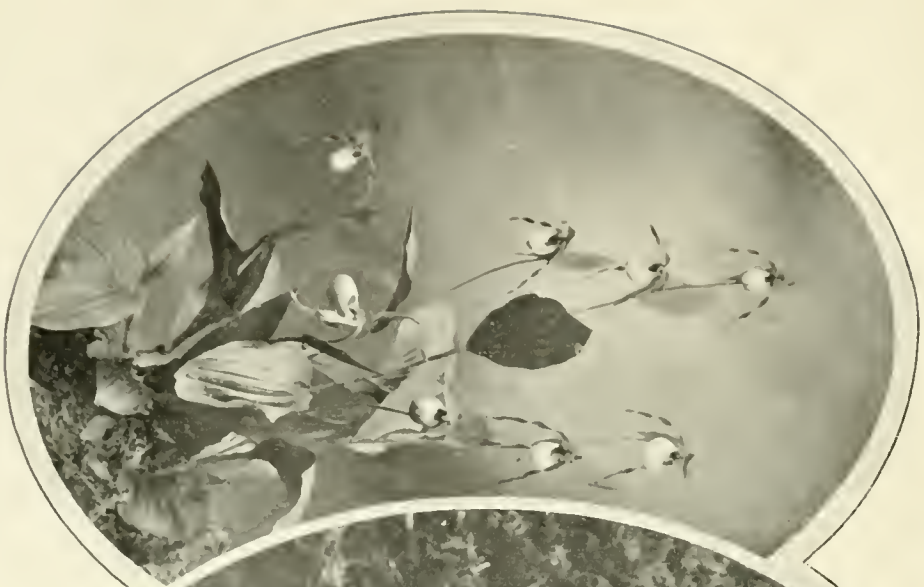
In the Tropics, where there are no truly deciduous trees, no long winter rest, no spring contrast of resurrection, where the struggle for light and air and attraction, for life indeed, is fierce, sustained, and deadly, we find this adaptation most and color, consequently, least conspicuous. In the colder countries, where there is air to breathe for all the flowering host, and room to dwell and joyfully inhabit the earth, fertilizing mechanism has not gone so far but that beauty and loveliness have out-run it, and gone further. For true beauty of form, glory of color, and wealth of bloom, all displayed to grandest advantage in the sublimest of Nature's own setting (and she is no tyro in art, but its very mother), the lover of things lovely can better view it at home in the mountain meadows amid the everlasting hills of his own Rocky and Selkirk Mountains, than in the heavy and interminable jungles of some distant torrid clime.

Though mountain flowers are so beautiful, and though some reason for it has been shown, there is still another but allied cause not quite as patent to the mind

as the fact is to the eye. In a word, it is because of the barometer. In our lowland homes the bee is the patron of the plants, and for him our lowland blossoms display their most alluring attractions and ingenious devices. Being, however, a busy and honestly industrious fellow, with no time to lose, the flowers he visits cater with eagerness to his purpose, and endeavor to catch his attention in a minimum of time. In keeping with his habits and sphere, our bee is a solid little chap, with a heavy body and small wings; and, because of the rarified air of the mountain heights where he cannot support his sturdy weight, he ceases to soar, and confines himself to more canny and commonplace ways where business is business. And the flowers, perforce, I think, recognize it.

In the sub-glacial space and sphere the butterfly reigns as lord, with a goodly and brilliant train of retinue after his kind. No busy, working, profit-making creature he, but a gay Adonis of his winged tribe, sipping nectar where he may be most attracted and disposed, and displaying his charms in all the gaiety of idleness. No plain, bell-spikes for him, but brilliant, showy, compact honey, easily gathered, and plenty of it. His motto, "A short life and a merry one," and seeing it is really so very short, how should it be other than merry. Adaptable and amiable in both spheres, highland and lowland, the flowers represent the characters of their winged admirers, and hence their differences of aspect, coloration and organization to our human view. There are other causes of difference, to be sure, which might be looked at with interest, but as our subject is Alpine Flora, description of some of its characteristics will explain them for us.

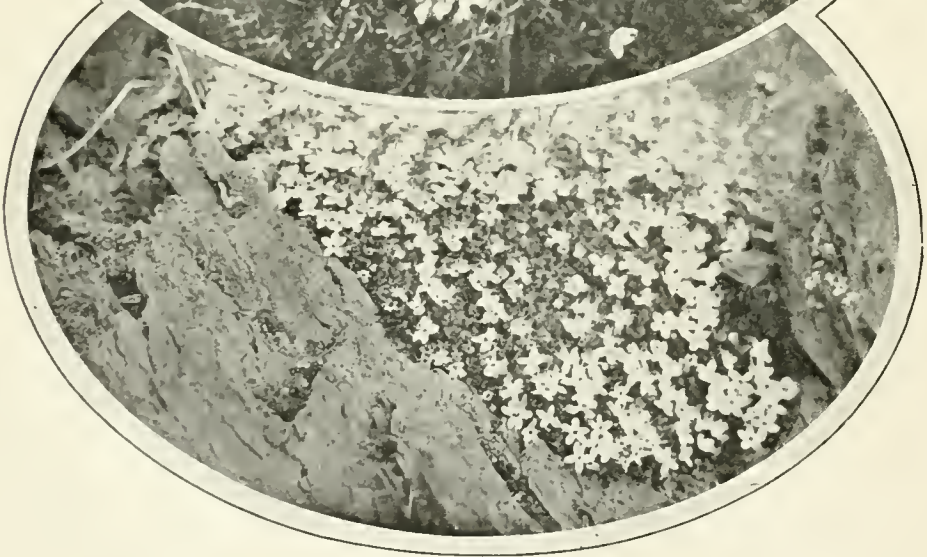
Ages and ages ago, the geologists will tell when, the earth as far south as, say, London, New York and Montreal, was covered with ice. Nothing had survived the cruel cold, and life was extinct in the great glacial



K. K. Colburn Photo.
Mountain Lady Slipper



White-flowered Parnassia
ROCKY MOUNTAIN FLORA
From Lowest to Highest Altitude



Moss Campion

grave where now we live in generous sunlight. In course of time, in the fulness of things, the old ice order changed, and, warmer weather setting in, plants and animals of sub-glacial regions, fulfilling their simple mission, followed the retreating ice-cap northward and upward. As time went on the plains got too hot to hold them, and they remained only on the high mountains, or close to the limit of northern snow. In this way isolated ranges in either continent have each their own little colony of Arctic or glacial plants and animals, surviving by themselves, unaffected by intercourse with their unknown fellows elsewhere. This explains the noted resemblance of species and characteristics common in most alpine flora, and in the Arctic circles of Europe and America also. Of course, the traveller in the European Alps will see a difference here in the species of our mountain flora, but the family and generic connection of our Anemones and Avens, Buttercups and Butterworts, Campion and Cranberry, Gentian, Heath, Wintergreen and Vetch, is close and clear, and tells us why at such long distances they reappear (in suitable conditions) following receding summer snow-lines and frontiers northwards. They are of an ancestry as old as the ice-age, and as pure in descent as ancient. They are simple, freedom-loving plants, loving their mountains and northern homes with a tenacity of purpose which spells life to themselves and beauty to the hills they adorn. No exotics or mixed breeds they, but beautiful examples of the simple life and hardy specimens of a vigorous clime.

The tenacity and vigor of an Alpine flora is splendidly seen in the progress of a mountain ascent. Leaving the fields of flowers—Arnica, Asters, Castilleja, Eriogonum, and other genera—we find them ever growing smaller as higher we go, till, at last, tall trees, so called, trail off into mere straggling and distorted bushes. Here, where we might reasonably expect to find no thing of beauty, we find *Draba* and *Oxytropis*, and, growing flat

on the ground, with hardly a stem to them, the Moss-Campion and Mountain Saxifrage. This diminution is the result of wind and cold; and because of the warmer air and more shelter near the ground, the plants lie close and produce their buds there. Thus, at snow line, and very far north, vegetation runs low and stunted, taking cover in every crack and cranny, and in every sunny nook for protective shelter and warming growth. For centuries they have been accustoming themselves to such strenuous surroundings, and well adorn the lofty stage they occupy. Low, rosette-shaped and compact, they offer a symmetry of form and cumulative habit dear to the florist's heart, and one which he artificially loves to encourage and produce amongst the reedier, if higher specialized, products of his plains.

Few, very few, plants are "careless of their neighborhood," but are found in a place appropriate to them, and they to it. Conspicuous in their faithfulness are the glorious but simple beauties of our Alpine flora, and if in our ascent we climb the mountain top "where biting cold would never let grass grow," we shall, even there, find its silver and sulphur lichens, reminding us, as it were, of the small pleasures which gladden even the saddest human lot, and, in the moral, find heart for further effort to be worthy of our place and walk in life.

MISCELLANEOUS SECTION.

A NOTE ON TYNDALL'S ALPINE BOOKS.

BY ELIZABETH PARKER.

In the second chapter of his mountaineering classic, "The Playground of Europe," the late Sir Leslie Stephen has this word to which every member of the Alpine Club of Canada will assent: "My readers—for I assume that my readers are mountain-lovers—will agree that the love of mountains is intimately connected with all that is noblest in human nature." It is the parenthesis that I would emphasize. Those persons who have voluntarily lived, even for one short holiday, in an alpine region, wandering here and there by valley and pass or climbing to more lofty elevations, are ever after interested in alpine books, and it is mainly for them that the mountaineer records his experiences and describes his visions in rare altitudes—for them and for the growing number of high climbers. There are those, it is true, who may make love to the mountains and who by vice of such love-making are without the circle of genuine mountain-lovers. Their mark is sentimentalism; their writing is not alpine and it is not literature.

Happily for the eager increasing number who climb mountains the world over there is, in our language at least, a very considerable alpine literature of high rank. These Canadian Alps, beginning but twenty years ago to be climbed, have inspired more than half a dozen volumes in modern mountaineering, any one of which would provide matter for an article in this journal. Their place is assured in Rocky Mountain history. As

far as I know they are: "Camps in the Rockies," by Sir W. A. Baillie-Grohman; "Among the Selkirk Glaciers," by W. Spotswood Green; "The Rockies of Canada," by W. D. Wilcox; "The Selkirk Range," by A. O. Wheeler; "Climbs and Explorations in the Canadian Rockies," by J. Norman Collie and Hugh E. M. Stutfield; "In the Heart of the Rockies," by James Outram; "Glaciers of the Canadian Rockies and Selkirks," by William Hittell Sherzer; "Mountain Wild Flowers of Canada," by Julia W. Henshaw; "Alpine Flora of the Canadian Rocky Mountains," by Stewardson-Brown and Mrs. Chas. Schäffer. This does not exhaust the modern list and there is also a very valuable literature now gone into the catalogue of "rare books." A good many of these have been secured for the Club's library. Among those wanted is Palliser's Journal. The hint is given gratuitously, and in passing, it may interest some to know that in the list given above, four of the authors are honorary members of the Canadian Alpine Club, one is its President and two are ordinary members.

I propose to call attention to Tyndall's "Glaciers of the Alps" and "Mountaineering in 1861," republished together in Everyman's Library. Part of the first volume is omitted to make room for the second, but it can be bought for about thirty-five cents in a well-bound volume printed in clear type by Routledge. I thought first of choosing Sir Leslie Stephen's book; and then in Scots phrase, I "swithered atween the twa," finally deciding on Tyndall. Nevertheless, "The Playground of Europe" is the most charming alpine book that has ever come my way; and, taking them all in all, mountaineering books are marked by those literary qualities required to grip the reader in the beginning and hold him thrall to the end.

It was by these mountaineering records that Sir Leslie first made fame as a writer. This may be news to many as it was to me who had read several of his

biographies and his "Hours in a Library" before ever hearing of "The Playground of Europe." And when I heard, I sent to London for it. It is neither scientific nor learned. You may learn much of a practical sort from it about climbing in the Alps, so minutely and so graphically does he record every round excursion. And he is so delightfully discursive, it is easy to understand how Stephen's friends were so fond of him, for "The Playground of Europe" tells mountaineering tales to which you can return again and again, they are told so wonderfully well. He seems to take riotous delight in the difficulties and yields himself with abandon to alpine beauty, though there is a certain fine reserve in his descriptive writing. Nevertheless, there is a winning, escapable personal element, revealing the writer's kinship with mountain scenery. Again, humanity bears a part in the book with bits of genial humour and—and persiflage. He has the gayest contempt for his own compatriots known in the catalogue as "cockneys." Altogether, "The Playground of Europe" is a very striking and original alpine book, and when it appeared, must have taken its fit audience by storm.

Tyndall's "Glaciers of the Alps" is a different book, but it is quite as interesting as the other. It is scientific, but not too scientific, being written in terms of the people. "The lave," of whom I am one, can read it with interest, all unconsciously absorbing useful knowledge. He is never ponderous, his science does not bore the layman; while he is intent on scientific observation and while he records every detail of glacier study, of ascent or descent on a given mountain, nothing of beauty in natural phenomena escapes his eager eyes. Were there space, I could quote copiously to prove this. There are very exciting places, for Tyndall was a venturesome climber—too venturesome. His precepts are all right, however. How gravely he warns his readers against such exploits of his own as climbing Monte

Rosa alone. His first ascent of that great mountain (15,284 ft.) was in company with one Swiss guide who knew no more of the way than himself, the round ascent occupying eleven and a half hours.

The second ascent was an impulse. He had lent his guide to a party bound for its summit, he himself sleeping in his bed until nigh six a.m. One first sight of a rare sunny morning and Tyndall must have, that very day, a sight of the world from the top of Monte Rosa. To avoid impedimenta later, he left his coat behind and started in his shirt sleeves, but with no hint of his goal to the guide he procured. Ere long he was making his upward way alone, the fearsome guide paid off and dismissed. "The sun and heaven were glorious, but the cold was nevertheless intense, for it had frozen bitterly the night before. The mountain seemed more noble and lovely than when I had last ascended it; and as I climbed the slopes, crossed the shining cols, and rounded the vast snow-bosses of the mountain, the sense of being alone lent a new interest to the scene." He was then on a dangerous snow-slope, but Tyndall ever loved what Stevenson calls the bright face of danger. Hear him: "The thought of peril keeps the mind awake, and spurs the muscles into action; they move with alacrity and freedom, and the time passes swiftly and pleasantly." So it is with any brave and flint-faced adventurer who, if he be an alpinist, need give no reason for indulgence in that heroic sport, save that he likes it. "No man who ever ascended that bad eminence Primrose Hill, or climbed to Hampstead Heath for the sake of a freer horizon, can consistently ask a better." On the way up Tyndall met the other party coming down, and he borrowed a kerchief to protect his naked neck from a freezing wind. By and by he stood in solitude on the summit of his splendid mountain. "A world of clouds and mountains lay beneath me. Switzerland with its pomp of summits, was

clear and grand; Italy was also grand, but more than half obscured. Dark cumulus and dark crag vied in savagery, while at other places white snows and white clouds held equal rivalry. The scooped valleys of Monta Rosa itself were magnificent, all gleaming in the bright sunlight—tossed and torn at intervals, and sending from their rents and walls the magical blue of the ice. Ponderous *névés* lay upon the mountains, apparently motionless, but suggesting motion—sluggish, but indicating irresistible dynamic energy, which moved them slowly to their doom in the warmer valleys below. I thought of my position; it was the first time that a man had stood alone upon that wild peak, and were the imagination let loose amid the surrounding agencies, and permitted to dwell upon the perils which separated the climber from his kind, I daresay curious feelings might have been engendered. But I was prompt to quell all thoughts which might lessen my strength, or interfere with the calm application of it. Once indeed an accident made me shudder. While taking the cork from a bottle which is deposited on the top and which contains the names of those who have ascended the mountain, my axe slipped out of my hand and slid some thirty feet away from me. The thought of losing it made my flesh creep, for without it descent would be utterly impossible. I regained it, and looked upon it with an affection which might be bestowed upon a living thing, for it was literally my staff of life under the circumstances. One look more over the cloud-capped mountains of Italy, and I then turned my back upon them, and commenced the descent.

“The brown crags seemed to look at me with a kind of friendly recognition, and with a surer and firmer feeling than I possessed on ascending, I swung myself from crag to crag and from ledge to ledge with a velocity which surprised myself.” He reached a dangerous part of the mountain in time to see the other

party emerging below from a hollow. They had escaped from the perilous "edge which now lay between them and me." With utmost caution and a canny use of the ice-axe he proceeded along this ridge until he came to a place where the snow became granular and the axe comparatively useless. And now his staff of life was mainly his own limbs, which must carry him along an edge past a continuous precipice on one side and a steep slope on the other. He hummed a frivolous song or speculated as to how he might break his fall should he slip and be hurled towards certain jagged rocks below; then doubled his speed till he came to a place of solid ice most perilous. "Encouraging myself by the reflection that it would not last long, I carefully and deliberately hewed steps, causing them to dip a little inward, so as to afford a purchase for the heel of my boot, never forsaking one till the next was ready, and never wielding my hatchet until my balance was secured." Which is good council for step-cutting on steep slopes. In another place (on the ascent) he learns the trick of resting without stopping: "I then slackened my pace, allowed each limb an instant of repose as I drew it out of the snow, and found that in this way walking became rest."

Once below the ugly places, "full of glad vigour" the climber bore swiftly down upon the company in advance and joined them in glissading, galloping, or rolling down, the rest of the way; and but for waiting to walk with a disabled member of the party, he had made the round ascent in a little over nine hours. And now this great mountaineer utters a sober word of warning—solemn precept against his own perilous practice. The dangers of Mont Blanc, Monte Rosa and their kind are very real, and, if not provided against, terrible. He solemnly protests against climbing without guides. "Less than two good ones I think an arduous climber ought not to have; and if climbing

without guides were to become habitual, deplorable consequences would assuredly sooner or later ensue." And, concerning the Canadian Alps and young Canadian climbers, "even so, it is so," else our mountains will have their sacrifice. "You cannot trifle with great mountains," said the President of this Club to a solemn group.

There must be some who remember those great lectures by Huxley and Tyndall to crowded audiences at the Royal Institution. Friends and colleagues in science, they differed widely in style. We are told that Huxley convinced his hearers whether they would or no; Tyndall won them by a winsome eloquence. It is so in all his mountaineering narrative and description. Comparing it again with "*The Playground of Europe*" there is in Tyndall's feeling for mountain phenomena an element of reverential wonder and awe. In Sir Leslie Stephen this feeling is wholly of admiration and devotion that is a splendid sort of camaraderie. I may be wrong, but I think he would not appeal as Tyndall would appeal to the reader who had never seen a high mountain range and who knew nothing, even at second hand, about mountaineering. Nevertheless, as I said, "*The Playground of Europe*" remains a book of surpassing charm, a classic to be reprinted and to find a handy place in the book-shelf of many an alpine climber yet unborn.

Turning again to the "*Glaciers of the Alps*," Tyndall will describe glacial action—always in terms of the people, blessings on his memory!—and with the information you get an inspiration to go to your own Alps and traverse glaciers with observing eyes. According to an English critic, a book that is both informing and inspiring, is rare indeed. Well, these are the qualities I find in "*Glaciers of the Alps*." There are passages of vivid description and singular beauty I should like to quote, but I shall be content with two more. The first

is to illustrate that rare power of which I have spoken. He is making observations on Mont Blanc: "The rocks alongside the glacier were beautifully scratched and polished, and I paid particular attention to them, for the purpose of furnishing myself with a key to ancient glacier action. The scene to my right was one of the most beautiful I had ever witnessed. Along the entire slope of the Glacier des Bois, the ice was cleft and riven into the most striking and fantastic forms. It had not yet suffered much from the wasting influences of the summer weather, but its towers and minarets sprang from the general mass with clean chiselled outlines, some stood erect, others leaned, while the white débris strewn here and there over the glacier, showed where the wintry edifices had fallen, breaking themselves to pieces, and grinding the masses on which they fell to powder. Some of them gave way during our inspection of the place, and shook the valley with the reverberated noise of their fall. I endeavored to get near them, but failed; the chasms at the margin of the glacier were too dangerous, and the stones resting upon the heights too loosely poised to render persistence in the attempt excusable." Investigation is to him a continual joy. Nothing escapes his quick, eager eye and ear; to wit, when he describes "a blower" in the ice. Nothing daunts him. On his first ascent of Mont Blanc, Huxley gave out and had to remain alone in the cabin at the Grand Mulets (10,113 ft.) where he waited for seventeen hours. "To the end of my life," said Huxley, "I shall never forget the sound of those batons." This was the sound of the ice-axes against the rocks as the party made speed towards the bivouac, which they reached at seven in the evening.

I said investigation was a joy to him, and yet, scientist as he was, there were times when human knowledge must give way to the spirit of beauty, when inquiry concerned only the things that can not be measured.

For, once on the summit of the Weisshorn, a mountain beautiful above all others to him as to many climbers, Tyndall opened his note-book to make observations, but abandoned the attempt. "There was something incongruous, if not profane, in allowing the scientific faculty to interfere where silent worship was reasonable service."

It was so difficult to choose my last passage that I left it to chance and opened the book at random, to find the following description, a typical one, from a climb on the Finsteraarhorn. "The dawn advanced. The eastern sky became illuminated and warm, and high in the air across the ridge in front of us stretched a tongue of cloud, like a red flame, and equally fervid in its hue. Looking across the trunk glacier, a valley which is terminated by the Lötsch saddle was seen in a straight line with our route, and I often turned to look along this magnificent corridor. The mightiest mountains in the Oberland form its sides; still the impression which it makes is not that of vastness or sublimity, but of loveliness not to be described. The sun had not yet smitten the snows of the bounding mountain, but the saddle carved out a segment of the heavens which formed a background of unspeakable beauty. Over the rim of the saddle the sky was deep orange, passing upwards through amber, yellow and vague ethereal green to the ordinary firmamental blue. Right above the snow-curve purple clouds hung perfectly motionless, giving depth to the spaces between them. There was something saintly in the scene. Anything more exquisite I have never beheld.

"We marched upwards over the smooth, crisp snow to the crest of the saddle, and here I turned to take a last long look along that grand corridor, and at that wonderful 'daffodil sky.' The sun's rays had already smitten the snows of Aletschhorn; the radiance seemed to infuse a principle of life and activity into the moun-

tains and glaciers, but still that holy light shone forth, and those motionless clouds floated beyond, reminding one of that eastern religion whose essence is the repression of all action and the substitution for it of immortal calm. The Finsteraarhorn now fronted us; but clouds turbaned the head of the giant, and hid it from view.....The ice-field before us was a most noble one. The surrounding mountains were of imposing magnitude, and loaded to their summits with snow. Down the sides of some of them the half-consolidated mass fell in a state of wild fracture and confusion. In some cases the riven masses were twisted and over-turned, the ledges bent, and the detached blocks piled one upon another in heaps; while in other cases the smooth white mass descended from crown to base without a wrinkle."

I hope I have quoted enough to induce the members of the Alpine Club of Canada to own a copy of this informing and compelling book which will inspire new climbers to honorable achievement in mountaineering and make fain for lost youth readers too old to climb high mountains.

(Signed) E. P.

ROGERS PASS CAMP.

BY S. H. MITCHELL.

Who says the word "camp" has a picture in mind. To the child it suggests pavilions hung with gorgeous silks, floored with magic carpets and crowded with fairy attendants. To the ordinary European a camp means row upon row of tents, equidistant, everything mathematically exact, everything dominated by military precision. To the Westerner the term implies a fire, something cooking in a frying pan, and a pair of blankets. Our Alpine Club camps are the golden mean. The fairyland of mountain beauty surrounds them, military discipline is mitigated by western freedom, and the frying pan is assisted in its important mission by a somewhat more elaborate cook's outfit—*batterie de cuisine* one may call it without affectation, seeing that the beating on the bottom of the big dish pan serves the office of a dinner gong.

The situation of the camp last year was not as picturesque as that held in the Yoho Pass, nor as grand in its surroundings as that in Paradise Valley; but it, too, had its beauties. The view of the Hermit Range and the Rogers Glacier was always fine, whether in the early morning light, in the setting sun, or when fleecy clouds, ominous of ill but still beautiful, drifted up from the pass below. The scenery of the Selkirks differs greatly from that of the Main Range; owing to the much heavier precipitation, the permanent snow line is at a lower level and vegetation of all kinds is richer. The great trees climbing the hillsides give a softer effect, and over all there is a bloom, a vagueness, very different from the clear outlines of the Rockies.

The arrangement of the camp was much as in years past. The official square was the centre from which the life of the camp radiated. An addition was made to its convenience in the shape of a letter rack, hung from one of the poles of the dining pavilion, where those who wished could look for letters. Be-shrew those uncomfortable folk, say I, who cannot do without letters for a short ten days in the year! Mail in camp, wireless telegrams! There will soon be no peaceable haven left on earth.

The builders of the camp had their troubles. Rogers Pass is narrow. The only good camp ground is occupied by the station and hamlet of that name. Through the pass runs the railway, an invention not in tune with the spirit of the mountains. Fortunately, though near, the trains were not visible. At the foot of the hill on which our village lay, the long dark swell of a huge snowshed served as a screen and its lines guided the eye to the heights of Mts. Macdonald and Avalanche upon the far side of the valley. The water supply was plentiful, but scarcely poetic. Unfortunately no mountain stream was available and all water used in camp was obtained from a pipe connected with that supplying the snowsheds, one of the many favors gracefully offered by the C.P.R. However, this served to gratify that class of townlover which prefers its milk from a nice, clean can, to that coming from a dirty cow.

As usual on reaching camp, the first thing necessary was to worry the President and get a billet allotted. Tents were found, as in former years, floored with fragrant balsam boughs and, in addition, furnished with a basin in the men's quarters as well as in that of the ladies. There was no ice-cold Paradise Brook to make the complexion darkly, deeply, beautifully blue. The softest unoccupied place for a bed was chosen, blankets spread out and dunnage sorted over in the fond hope of reducing things to a system.

"But hark! a sound is stealing on my ear—
A soft and silvery sound—I know it well.
Its tinkling tells me that a time is near
Precious to me—it is the supper bell."

Fortunately there is always plenty to eat. Ice-axes and alpenstocks would be dangerous weapons in the hands of an infuriated and hungry mob, and the directorate provides against any such direful contingencies. The cooking and attendance were as usual celestial and one did not need to wait until the hereafter to enjoy its benefits. One of the waiters, Charlie Sing, was a born comedian, but such humors are often tedious when repeated. One day a dish of potatoes slipped from his hands: "Ah, ha!" he said, with extreme enjoyment; and twinkling eyes, "Tatas slide allee samee snowslide," and then in a stage whisper: "Heap more tatas, you see."

So evening comes and one strolls round, meeting old friends and making new acquaintances, chattering, laughing, noticing the shadows gathering and falling deeper. The lines on the hills become vague and the camp fire begins to glow and as a big log is thrown upon it, a mighty blaze leaps into the air. The first night in camp the fun round the fire is but half hearted; people have so much to talk about. They have not shaken off the solemnity and sedateness of everyday life. It takes a day, even in such surrounding, to become childlike again; yet to be childlike is necessary to win the full enjoyment of these mountain camps.

By this time the notices of the morrow's expeditions have been posted upon the notice board. Every one sagely remarks "I am going to take it easy the first day," but the board's suggestions are too alluring, and the President's tent is thronged with people waiting to put their names down for the various trips.

First in importance is the official climb. The main object of the camp is—theoretically—to afford novices the opportunity of qualifying as Active Members. The climbs arranged were decidedly harder than those of last year. Most aspirants tried Mt. Rogers, but a few graduated on Mt. Hermit. It is possible to make the ascent of either in one day from camp, but that would necessitate getting to snow level at rather a late hour, and so a small camp was pitched at timber line and ascent to this was made the afternoon before the climb. From the main camp the evening fire of the adventurers was seen shining like a star in the darkness and served as a sentinel to say all was well.

Start was made about 4 a.m. Snow-line was soon reached, ropes put on, and the passage of the Rogers Glacier commenced. This, naturally, was a toil or a pleasure, as the condition of the snow was good or bad. Sometimes, the ascent was made over the glacier and by the snow nearly all the way; sometimes, a long spur of rock was climbed to the summit, making a much more interesting experience.

The ascent of Mount Hermit starts from the same point, but a different route is taken across the glacier, a line straight to the southern face of the peak. The usual route is up a narrow and steep *couloir*, but this year the climbers wished for a little more variety, and the eastern *arête* was tackled. It made a very interesting variation. There was just enough difficulty to keep the attention on the alert, the rock was firm and the footing sure. The descent was made by a *couloir* nearly at the centre of the peak. There were loose stones requiring a certain amount of watchfulness, but watchfulness is an abiding necessity upon the mountains. The glacier was soon reached again and so back to camp.

The views from both Rogers and Hermit are similar. To the east stand Stephen and the mountains of the Great Divide. Close by rises Tupper, only a

little snow powdering its inhospitable crags; then, further off, Sir Donald; further still the mountains of the Dawson range are seen framed in the Asulkan Pass. Far in the north rise the mountains of the Columbia snow-field. As ever in these lonely hills of God, peaks rise beyond peaks, vast waves of mountains, unnamed and unknown.

There were many other expeditions. The one to the summit of the Asulkan Pass perhaps best repaid the effort. The path, starting from Glacier House, wandered through the forest and then for five miles up the Asulkan Valley to the foot of the glacier. A land of streams! The brook running down the centre is fed by many waterfalls; the flowers were in brilliant bloom; bright against the blue sky shone the snow. At the head of the valley a small camp was pitched and there the members picnicked, blessed the mosquitoes, sang round the fire and slept the sleep of the open air. An early start was made the next morning. Scrambling up the *moraine*, the main body of the glacier was reached above the *séracs*. Owing to the late snow, the crevasses were well bridged. The summit of the pass was easily reached after some patient trudging, and the view that took the sight was superb. The pass dropped steeply on the further side. Across the deep valley lay the whole Dawson Range, the Donkin Glacier winding down from its heart. On the left was the Geikie Glacier. Far to the right Mt. Purity gleamed white, the dark and lonely valley at its foot suggesting by its contrast the possibility of a magnificent etching—if only one could! Close on the right Castor and Pollux and the rest of the Abbott Range walled in the pass. Turning fully round, the whole of the noble Hermit Range was clear across the green Rogers Pass.

This expedition ended in various ways. The obvious and least interesting was to return the way one come. One party ascended the ridge and, scaling Castor and Pollux and other peaks, came to Mt. Abbott, and so down to Glacier House. This made a very long day. Another party switched round from the summit of the pass on to the *névé* of the Illecillewaet Glacier. This entailed some interesting rock work. In one place a cornice was so heavy that it had to be cut through and the guide let down to spy out the land. All was satisfactory and the snow-field was gained and traversed to Perley Rock. By the time that was reached the day was getting old and much snow had melted. When the glacier was left and the rocks traversed the streams were found to be very full and a good deal of difficulty was experienced in crossing them. However, a bath on a hot day was found to be an amusing episode—when it was over—and camp was reached in the best of spirits.

Another expedition popular with the less stalwart climbers was the visit to the Cougar Caves. The old "tote" road, used during the construction of the railway, was followed for the first part of the journey. It wound through the woods along the bank of the Illecillewaet until the mouth of Cougar Creek was reached. The valley, lying between Cheops and Cougar mountain is of more than usual interest. It is sharply divided into a lower V-shaped water-cut, and an upper U-shaped glacier cut valley. At its upper end are several small glaciers. Looking down the valley magnificent views of Sir Donald are obtained. Much snow still lingered in sheltered places, and where it had lately disappeared the yellow flowers of the Adder's Tongue made patches of brilliant color. As the caves were approached the snow became more plentiful, and in their immediate neighborhood was thick enough to give an aspect of winter. There was general disappointment

when the custodian of the caves told the travellers that, owing to the lateness of the season, the water was unusually high, and hence the greater extent of the caves were inaccessible. A large log house of three rooms was used as a sleeping camp, and meals were served in the custodian's comfortable cabin. One party was detained an extra day by very heavy rain, but though necessarily a burden in a small house, were made most welcome by Mr. Deutschman. The caves were visited as far as the water would allow. Acetylene bicycle lamps were used instead of the traditional tallow "dips" and answered the purpose admirably. The caves, as far as they were seen at this time, are a series of passages and circular pot-holes, worn out of the limestone, which in places is marbleized. The lighting of a piece of magnesium wire had the usual uncanny effect. Still, something was lacking; there were no stories of smugglers or banditti; nothing to give delightful shudders.

The journey home was made either by the trail down the valley, or by Baloo Pass and Bear Creek. There is no trail through the pass and the scramble to its summit through the thick and tall underbrush gave those who chose that route a very interesting time. Bear Creek has a way of raging that is somewhat disquieting to those who love to go dry, but it runs through a delightful valley down to Rogers Pass. From it Cheops and Ursus Minor are best ascended, but the weather prevented these climbs during the life of the camp.

Owing to the large number of two-day trips the camp fire was not so crowded as usual; but after the apparently inevitable hymns were over many good songs were enjoyed. No song is too old or too hackneyed for such a time as long as it has "go." "John Peel," the Vicar's song from the "Sourcerer," "Mrs. Henry Hawkins" and many others helped to cheer the night.

One evening a topical song duet was brought two lady artists, "The Clarget Springams," which caused much amusement and had to be repeated several times. However, the humors of the camp fire, like greater mysteries, are only to be understood by the initiated.

During the Camp the Annual Meeting of the Club was held, at which several matters vitally affecting the future welfare of the Club were discussed.

After a stirring address from the President, the reports of the different officers were read, and finances and business generally were found to be in a flourishing condition. The ballots for the various officers were counted and the results announced. The President then proceeded to show how the work of conducting the Club had increased to an extent that made it a serious burden to those who had so far willingly given of their scanty spare time to its carrying out. It was, therefore, decided to appoint a salaried Executive Secretary who could devote all his time to the business of the Club.

The President then recalled the offer made by the Dominion Government of the lease of a plot of ground in Banff on which to erect a club-house. It was felt that the time was ripe and that the option should not be forfeited, but it was also evident that the Club could not finance the building out of its income. A scheme of ten year debentures bearing interest at six per cent. per annum was arranged, and a large amount was subscribed on the spot.

It was also decided that incorporation be applied for at the coming session of the Alberta House. The meeting ended in general satisfaction and enthusiasm.

The Art Competition was most interesting, but the number of entries was not as large as it should be. There were nine exhibits divided among the three classes. The prizes were awarded to Mrs. J. W. Henshaw, H. G. Wheeler, and P. M. Humme.



C. H. Mitchell, Photo.

ANNUAL GENERAL MEETING AT ROGERS PASS CAMP



C. H. Mitchell, Photo.

AN IMPORTANT QUESTION COMES UP

Representatives were present from the Alpine Club (England), the Alpine Club of the Netherlands, the American Alpine Club, the Appalachian Club, and the Mazamas of Washington. Sir William Van Horne sent a delightful sketch of himself as a well-nourished "merry Swiss Boy" leaping ponderously from rock to rock. Kindly communications were received from Sir Sandford Fleming and the several honorary members.

As in former years the Club received help and encouragement from all the powers that be. The Dominion Government lent the services of the President, Dominion Topographer, and his survey party for the week of the camp; the Government of Alberta, although camp was held in another province, generously gave a grant of \$500; and the C.P.R., not only in the way of rates, but through their several departments, gave every accommodation in their power. The Club is grateful, and, in return, does much for the advertising of those parts of Canada hitherto but slightly appreciated.

And so the happy week wore to its end. The canvas village fell; the hillside was left bare and lonely. Nothing to show for it all? Yes! what all pursuit of true sport entails: a gain in health and discipline of character, a host of happy memories.

IN MEMORIAM.

WILLIAM S. VAUX, JR.

During the past year Science has lost, through the death of William S. Vaux, Jr., one of her modest devotees who was doing conscientious and painstaking work along quiet and unspectacular lines, of which not a great deal is heard, but which added materially to the sum of human knowledge respecting the laws of Nature and their application.

Mr. Vaux was born in Philadelphia, April 1st, 1872, and was educated in private schools there, and graduated with the degree of B.S. in the Engineering Department of Haverford College in the class of 1893. Always having a strong methodical bent, while in college he did much practical work of value. Among other apparatus in the construction of which he took a leading part was a dynamo, which did good service for years in the lighting plant of the College.

After graduating, Mr. Vaux soon began to apply himself with assiduity to his chosen profession, that of an architect. Whilst not lacking in artistic feeling, he devoted his energies largely to the practical side of his subject — strength of materials, construction-design, lighting, heating, ventilating, etc. This brought him in contact with the contractors and their employees. By these men he was universally respected. They knew he would not pass inferior work, or permit his client's interests to be slighted. At the same time, it was felt by all that he would be perfectly fair and just in his dealings, and that no one would have real cause to complain of the way in which he would construe contracts, drawings, and specifications.



WILLIAM S. VAUX, JR.

Whilst his professional career was a short one, there are a number of important buildings in and near Philadelphia which will stand as monuments to his ability as an architect.

Coming of families, on both his father's and his mother's sides, who had been interested in scientific pursuits and investigations for generations, it is not surprising that this realm should have appealed to him strongly. Whilst not particularly caring for mathematics, something of the character of his pastimes may be gathered from the title of his graduating thesis at college, "Gyroscopes and Gyrostats and Gyrostatic Motions." When a boy of less than fourteen years, he wrote, printed and illustrated with his own photographs, a miniature book, descriptive of his trip to the Yellowstone National Park. Later, a photographer of more than usual ability, his first pictures were made with a camera he himself constructed as a boy of eleven or twelve, using a pin-hole for a lens. These incidents are mentioned to show that he was thorough in his undertakings, not afraid of work, and accustomed to understanding his subjects from their foundations up.

Outdoor life appealed strongly to his manly, joyous character. Accordingly, we find him as a foundation member and the Treasurer of the American Alpine Club and an early member of the Alpine Club of Canada. For both of these organizations he qualified by his years of patient observation and study of the glaciers of the Canadian Rockies and Selkirks. Mr. Vaux first visited these regions in the summer of 1887, when a boy of fifteen years. His second visit was in 1894, and subsequently he pursued the matter each summer from 1897 to 1907, with but one year's intermission caused by business exactions.

From the first of these visits the phenomena of the glaciers attracted his attention, but it was not till the summer of 1899 that his work took really definite form.

Then it was, that with the assistance of his brother, George Vaux, Jr., he made a fairly accurate survey of the forefoot of the Illecillewaet Glacier; laid out a line of plates to measure its rate of flow; did much work on its recession; mapped the tongue and adjacent *moraines*; located the various rocks previously marked by other observers, gathering all possible data respecting them; and made a photographic survey of the tongue. The results were published in a paper read before the Academy of Natural Sciences of Philadelphia the following winter. Subsequently, each season, this work was kept up systematically, reports being furnished to and published by the Academy of Natural Sciences of Philadelphia, and also the International Commission on Glaciers, which did him the honor to reprint in full his last detailed paper presented to the Academy of Natural Sciences of Philadelphia, and published by it. This was the first time in the history of the Commission that any extensive paper, not prepared especially for it, was so reprinted.

His investigations, however, must not be thought to have been limited to the Illecillewaet Glacier. The tongue and surroundings of the Asulkan were also surveyed and mapped; its rate of flow measured by setting out plates; and its various advances and recessions studied.

In the Rockies his work was less detailed, but valuable. It has included measurements of the rate of flow and recession of the Victoria Glacier; of the recession and structure of the Yoho Glacier; also general conditions of the Wenkchemna Glacier and of the Bow Glacier. On all these, reports have been made and the maps above named and many photographs published.

A little popular treatise upon glaciers, published with illustrations, in a number of successive editions, year by year, by the Canadian Pacific Railway, was largely from his pen. It has had some vogue in high

schools as a text book. His last contribution was presented to the Academy of Natural Sciences of Philadelphia in December, 1907, and embraced the results of observations made during the preceding summer. This was a paper of four pages.

In March, 1900, he prepared for the Engineers' Club of Philadelphia, a paper published the following May, in which were described very entertainingly the engineering difficulties connected with the construction of "The Canadian Pacific Railway from Laggan to Revelstoke, B.C."

It was also to the Engineers' Club of Philadelphia that he contributed, in May, 1907, the paper republished herewith. It gives in his own words the best account extant of some of the investigations that had so deeply engrossed his attention by way of recreation.

His work in preparing the report of his 1907 observations was the last that he was able to do. On July 23rd, 1908, he died at his father's summer home at Bryn Mawr, Pa., leaving behind a vacant place in the hearts of many friends.

“LOOKIN’ BACK.”

Wathers o’ Moyle an’ the white gulls flyin’,
 Since I was near ye what have I seen?
 Deep green seas an’ a strong wind sighin’
 Night an’ day where the waves are green.
Struth na Moile, the wind goes sighin’
 Over a waste o’ wathers green.

Slemish an’ Trostan, dark wi’ heather,
 High are the Rockies, airy-blue;
 Sure ye have snows in the winter weather,
 Here they’re lyin’ the long year through.
 Snows are fair in the summer weather,
 Och, an’ the shadows between are blue!

* * * * *

“THE NORTH-WEST—CANADA.”

Oh, would ye hear, and would ye hear
 Of the windy, wide North-West?
 Faith! ’tis a land as green as the sea,
 That rolls as far and rolls as free,
 With drifts of flowers, so many there be,
 Where the cattle roam and rest.

Oh, could ye see, and could ye see
 The great gold skies so clear,
 The rivers that race through the pine shade dark,
 The mountainous snows that take no mark,
 Sun-lit and high on the Rockies stark,
 So far they seem as near.

* * * * *

MOIRA O’NEILL.

(From “Songs of the Glens of Antrim.”)

ALPINE NOTES.

AN ACT OF HEROISM.

All who know anything about the Canadian Rockies will have heard of the oldest and most celebrated of its guides, Tom Wilson, of Banff, who was with Major Rogers during construction days of the Canadian Pacific Railway, and who discovered the famous Lake Louise and the Yoho Valley. Mr. Wilson's home is at Banff, but his business of horse-ranching takes him for a large part of the year to the Kootenai Plain, on the North Saskatchewan, where his ranche is situated. Some little time before last Christmas Day he started from his ranche to celebrate the annual festival with his family at Banff. It meant a snowshoe tramp alone of seventy miles through lonely tree-clad valleys, through rock-bound gorges and over wind-swept passes, where all nature lay stark and stiff in the icy grip of winter. The tale is best told in Mr. Wilson's own words, and those who know can easily read between the lines and can, perhaps, picture the terrible agony, the fierce despair, the grim determination, and the hardly-won fight against that overpowering desire to sleep which is the most deadly enemy in a case of this kind. The trip was made up the Siffleur River, over the Pipestone Pass and down the Pipestone to Laggan, and so by rail to Banff. Mr. Wilson writes me:—

“There is not much to tell of my trip over the Pipestone Pass. It was simply the case of a man starting on a seventy-mile snowshoe trip across the mountains to eat his Christmas dinner with his wife and family, and of getting there and eating the dinner, the pleasure being well worth the trip. I rode to within eight miles

of the summit and started early the next morning on snowshoes to cross the pass (8,300 feet alt.). It was snowing a little and very cold when I started, and when I got opposite the Clearwater Gap a blizzard came up, and I could not see more than six or eight feet ahead in that grey snow light that makes everything look level. I was on the trail along the mountain side, and was afraid of falling down one of those steep side collars (which you will remember on that side), and of breaking my snowshoes, so I turned and went down the mountain to the creek bottom. The snow was seven or eight feet deep and I fell through a snow bridge, getting both feet wet. It was below zero and a long way to timber whichever way I turned; a little nearer turning back, but I never like hitting the back trail. It was eight o'clock at night before I crossed the summit of the pass and reached the first timber. I got a fire started, but it was drifting and snowing so hard that the snow covered my sox and moccasins as fast as I could wring them dry, and, owing to the fierce wind, the flames leaped in every direction, making it impossible to get near the fire, so at half past nine I gave it up, put in my wet footgear and snowshoes and started down the valley. I could not see and felt the way with a stick. By daylight I had made three and a half miles; not much, but it kept the circulation going. In the heavy timber I made a fire and got dried out. My feet were beginning to pain as they had been thawed out twice already. I made three miles more that day and finished the last of my grub. The big snowshoes sank fifteen inches in the soft new snow and were a heavy drag on frozen toes. I saw it meant three or four more days tramping without grub to make Laggan. I made it in three, but the last day I could only make about fifty yards without resting, and my back tracks did not leave a very straight line. The chief trouble I had was to keep from going to sleep; it would have been so much easier to quit than to go on."

Mr. Wilson concludes his letter with the remark, "I think this is the longest letter I ever wrote."

Think for a moment what it really meant; that every time he put on his snowshoes his toes got frozen owing to the tight shoe straps; that every time he took them off his feet had to be thawed out; that every step had to raise a load of ten to fifteen pounds of soft snow; that wood had to be collected and cut to keep alive during the night; that fierce pain would drive away sleep; that he had no food, and always before him those interminable, slow, dragging miles of snowy wilderness. It must have required iron determination to make the end of that never-ending track, to eat his Christmas dinner with his wife and family.

Even such an awful experience could not dull Tom's keen native wit, and his remark to the doctor while examining his poor feet, "I hope I won't have to lose them, Doctor, I've had 'em a long time and I'm sort of used to e'm," shows the spirit of the man. We are happy to add that Mr. Wilson is now progressing well towards recovery. He has lost part of several toes on each foot, but as he says himself, the doctor has left him well balanced, by taking the same number of parts from each foot, and he can't complain.

AN ATTEMPT ON MT. SIR SANDFORD.

At the close of the Rogers Pass camp of 1908, B. S. Comstock, of New York, and H. Palmer, of Boston, both Active Members of the Club, accompanied by two guides, Manuel Dainard and Ed. Robinson, of Golden, B.C., made an attempt to reach the summit of Mt. Sir Sandford. A brief account of the expedition has been furnished the Journal by Mr. Palmer, as follows:—

“We left Glacier House for Beavermouth on July 18th and camped there over night. Next morning we started down the Columbia River in two canoes. The river was very high, about fifteen feet above its usual level, and the current correspondingly swift. The nineteen miles to the mouth of Gold Stream was made in about two and a half hours. Near this point we had a very good view of Mt. Sir Sandford, some ten miles inland. Little more than the peak was visible as the slopes of the valley of Gold Stream are very steep, so that a short distance down stream the view of the peak was cut off, but we had the opportunity of seeing the east extension of its base. This terminates in a double-peaked massif, for which we suggest the name Mt. Taurus as appropriate because of its horn-like summits. Below the massif nestled a good-sized glacier—peaks and glacier being visible from the Columbia.

“We pushed up Gold Stream, which is about the size of the Beaver River, with much difficulty, for about two miles, then landed on the north bank and left out tent and provisions. From this point it took two days of very slow work, pushing through the thick growth, to reach the spur descending from Mt. Taurus to the west bank of Gold Stream. At this point a branch of Gold Stream enters from the west, draining a valley parallel to the Columbia, north of Mt. Sir Sandford.



Howard Palmer, Photo.

MT. SIR SANDFORD
From East Ridge at Altitude 9000 Feet.

"The third day we spent climbing the spur, reaching an altitude of 4,000 ft. that night. The fourth day we managed to make 2,500 ft. and established another camp at timber-line, still on the spur. At this point our provisions were much reduced and we could only remain to continue the climb one full day more. Sir Sandford had been invisible since leaving the Columbia.

"The fifth day we traversed the entire easterly termination of the Sandford Range to the south-east *arête*, crossing below a smaller glacier. An ascent of this brought us to a minor summit to the south of Mt. Taurus, at an altitude of approximately 9,000 ft. from which the entire region to the south and south-west was visible, as well as the whole northern chain of the Rockies on the further side of the Columbia. Sir Sandford was something over two miles to the west of us and presented a most striking appearance. The day was a glorious one and not a detail of the magnificent panorama was hidden. We spent three hours on this point, photographing, sketching and erecting a stoneman. We named the peak Cornice Mountain because of the large cornice which overhangs the small glacier before mentioned. Our return was comparatively uneventful and on the fourth day following we again reached Beavermouth."

It was found impossible to ascend the mountain from this side. To reach its summit it would have been necessary to descend far down the valley and follow to its source a tributary stream until the further side of the mountain was reached, some six or eight miles distant. It would have meant a week's work longer and there was only food enough to take the party back to the railway.

NEW ROUTE UP MT. SIR DONALD, 1908.

Mr. J. P. Forde has contributed the following note:
"There are three known routes to the summit of Mt. Sir Donald, spoken of respectively as:

(a) The Huber and Sulzer route, by which the first ascent was made in 1890.

(b) The Green and Leprince Ringuet route, which was followed by those gentlemen in 1888 and 1899.

(c) The Vaux route, used by Vaux in 1900, and since generally followed.

"The latter route necessitates the crossing of a *couloir* which is almost always in a dangerous condition, owing to the great frequency with which small avalanches of ice, rock and snow are encountered in it. The first party to ascend the mountain in 1908 reported this *couloir* to be in a particularly dangerous condition at that time (July 9th), and the guide was reluctant to take another party on the mountain until later in the season.

However, as a second party had arranged to make the ascent two days later the guide was prevailed upon to accompany them. They had heard of a new route which led up through a small chimney, by which the dangerous *couloir* could be avoided, and, as they were anxious to learn if this route was a practicable one, they decided to investigate it.

"The Vaux route was followed until shortly after the *bergschrand* was crossed, and the chimney was then reached by bearing upwards and to the right of the usual route. It was found to be about seventy feet in height and from two to five feet wide, gradually narrowing towards the top. The face of the wall at the back of the chimney has a slope of about 70° from the horizontal for the first fifty feet, and at the top it is actually overhanging. The guide worked his way up

first, assisted by the second member of the party, and as each few feet was gained he braced himself, and the others followed, assisted by the rope and axes. The first fifty feet did not present any particular difficulty, but the last twenty feet was only gained by hard fighting. However, the top of the chimney was reached after two hours' work.

"A traverse was then made towards the left, and the usual course was joined at the point where it emerges from the *couloir* onto the solid rock. During the traverse two nasty corners had to be rounded, but with ordinary care they were not dangerous. The Vaux route was then followed to the summit.

"On the descent the route by the chimney was used, the guide lowering each of the party in turn on the rope, and one of the party paying out the rope around a rock at the top of the chimney to lower the guide.

"At the time of this ascent (July 11th), there was considerable ice in the chimney, which rendered the passage through it somewhat more difficult than would be the case later in the season. Also, during the descent, which was made about one o'clock and which took about an hour, a small cascade of water was falling through the chimney, which thoroughly drenched the party, but which would not likely have been encountered a few days later.

"A permanent rope at this point would render the passage of the chimney comparatively safe and easy, and when a rope is in place the writer considers that this route should be taken, in preference to the one through the more or less dangerous *couloir*."

In addition to the routes Mr. Forde mentions there is a fourth, viz.: that by way of the north *arête*. The climb was made on September 3rd, 1903, by E. Tewes, of Bremen, Germany, assisted by the guides Edouard Feuz and Christian Bohren. (See Wheeler's "Selkirk Range," page 347).

INDEPENDENT MOUNTAINEERING.

MT. STEPHEN.

Immediately after the Rogers Pass Camp a number of the members, in two parties, made the ascent of Mt. Stephen. The first rope was in charge of P. D. McTavish, the second of D. N. McTavish. The climb is worthy of note as it marks a new era among Canadian mountaineers, viz., that of climbing an important peak without professional guides. Messrs. P. D. and D. N. McTavish had already distinguished themselves by two ascents of Crow's Nest Mountain, but Mt. Stephen, which is the stock climb for the Swiss Guides stationed at the Canadian Pacific Railway Company's hotel at Field, is in a higher class. The others who climbed were: the Revds. Gordon, Fraser and Kerr; Messrs. Watt, Wilson, Hart, McCoubrey. Dr. Crawford and Miss Patterson graduated upon this occasion.

The party left Mt. Stephen house at 7.15 a.m. Being a large one, with several novices, great care was taken and the ascent made very slowly but surely. The summit was not reached until 3.45 p.m. The descent was commenced at 4 p.m., and the hut above the fossil bed reached at 8.30. From that point to the hotel is a beaten path. Mt. Stephen is described by the party as a splendid rock climb.

MT. EDITH.

A month later a party composed of Messrs. Hart, Wilson, Darling, McKillican and Miss Stewart, under the leadership of F. D. McTavish, climbed Mt. Edith. It is stated that the last 700 feet is very difficult rock, rotten and dangerous. At one place the route of the climb led up an inclined hole for a distance of sixty feet. A cairn was found on the summit. It is likely that the

cairn was that placed there by Dr. N. J. Collie, who made the first ascent in 1900, accompanied by the outfitter guide, Fred. Stephens.

At this point it is well to sound a note of warning. We are thoroughly in accord with individual effort, and hold that the only real mountaineering is that done independently of professional guides, who through superhuman exertion and consummate skill take everybody and anybody to the summit of the highest peaks. All honor to these brave and sturdy mountaineers, who risk their lives more often than is realized in the endeavor to populate the mountain summits; who, with infinite patience, place the wayward foot and hold the trembling hand, who even carry in their arms, 'cross dangerous places, those whose nerves have risen in revolt, and on their backs those whose legs have run riot. All honor to them! we say. Their patience is inexhaustible, and their powers inestimable. One of the guides at Glacier, once asked how he had managed to get a certain rotund gentleman to the summit of Mt. Sir Donald, replied: "Oh! That is nothing. We could take up a dead man."

But, while independent mountaineering is the only true mountaineering, and individual effort and ability bring the only really satisfactory results, it is absolutely a necessity first to learn the game and to acquire the requisite knowledge and skill before risking your own and other lives in what may eventually prove most dangerous places. It is so easy to go forward, so difficult to go back; so easy to ascend and so difficult to descend. The snow bridge does not collapse until you are on it; the avalanche does not start until you have given it momentum; the cornice does not break until you have displaced its centre of gravity, and then you learn too late, and the experience is for the others, if others there be. The prevailing inclination is to minimize the difficulties and dangers of a mountain and to overrate your own powers and those of your party. Remember, the older

and more experienced the guide, the more careful he is; and do not forget that a chain is no stronger than its weakest link. Before taking an untrained party for the climb of a big peak you should know your route; you should know their powers; you should know the uses of the ice-axes and rope; you should be able to judge the strength of an ice bridge, or the hold of a snow slope on the mountain side; you should instinctively understand where rockfalls occur, and your ear should be ever alert for an avalanche. Above all, never take upon a rope a greater number than can be guarded by its use. Otherwise, instead of being a safeguard it becomes an instrument of death. This to the guide. For the others there is but one word: "Obedience."

MT. GARIBALDI.

In July of last year the third ascent of Mt. Garibaldi was accomplished by a party of four gentlemen from Vancouver. A camp was set at timber-line on the south face, beneath the southern pinnacle, the ascent to that point being made by the south slopes of the Tsee-Ki Canyons. This route, as compared with the north one of the first ascent, is fairly easy, being more open and freer from bluffs.

A few days were spent exploring the wonders and beauties of the forests, alplands and glaciers of the mountain, and viewing the ever-changing phenomena of the region. One gloomy morning found the members of the party high up on the treacherous precipices of the southern pinnacle, within a few hundred feet of the tooth-like point. They were forced to retreat owing to the weather breaking, and it was well they did, for the last glacier was crossed in the teeth of a whistling blizzard.

Two days later they set out again and by 9 o'clock were on the main summit, having accomplished the ascent by a new route. Advantage was taken of the occasion to make the first ascent of the Dome.

MOUNTAINEERING CLUB OF REVELSTOKE.

In January of 1909 a number of members of the Alpine Club, resident in Revelstoke, got together and formed a local club for the purpose of mountaineering in the Selkirk and Gold ranges and, avowedly, for the purpose of advancing the interests of and training recruits for the Alpine Club of Canada. The clause of its constitution bearing upon this phase of its propaganda is as follows:—

“ *Objects* :—The Objects of the Club shall be “the promotion of interest in the Alpine Club of “Canada; in general mountain and glacial study; in “mountain climbing; in photography, particularly as “applied to mountain subjects; and the opening up “of trails and other means of access to particular “points of scenic interest in the neighborhood of “Revelstoke.”

The new Club numbers amongst its members some good mountaineers, who have already done something in the Canadian Rockies. Its field of operation—the Selkirk and Gold ranges—presents unlimited opportunities, and in the immediate vicinity of the Club’s headquarters are several peaks that will furnish excellent climbs to train for the larger sphere of the Canadian national club. Chief among these are Mts. Begbie and Cartier; the former in the Gold Range, the latter in the Selkirk Range.

Mt. Begbie was first ascended on June 11th, 1907, by a party consisting of the Rev. Dr. Herdman, of Calgary, Vice-president of the Alpine Club; the Rev. J. R. Robertson and Rupert W. Haggan, of Revelstoke, accompanied by the Swiss guide, Edouard Feuz, Jr.

The chief difficulty in an ascent of Mt. Begbie lies in reaching timber-line through the thick matted underbrush that clothes the lower slopes of the mountain. It is necessary to camp out for two nights and all facilities must be packed on the back. In the present case no other difficulty was experienced except that the day was wet and was snowy on the mountain, making the climb disagreeable and cold, and hiding the magnificent view that would otherwise have been displayed. The most exciting incident occurred during the return across the river in the boat which, when near the east shore, was swept against a log and upset. The guide, who was farthest out, had a hard struggle for a minute or two, but eventually all climbed safely on the log and made the shore.

A good work for the Revelstoke Club would be to construct a pathway through the thick growth to timber-line and to erect a suitable cabin for a stopping place near the permanent snow-line. The view from the summit of Begbie is magnificent beyond description, and the climb would undoubtedly become a favorite one for Club members and visitors to Revelstoke.



CLIMBS OF IMPORTANCE MADE IN 1908.

Outside of the work done by the Alpine Club and its members, as set forth herein, few climbs of importance were made during the season of 1908.

By members of the Alpine Club the following peaks were ascended: Sir Donald, Rogers, Tupper, Hermit, Avalanche, Victoria, Lefroy, Aberdeen, Stephen and Edith. Attempts were made on Mt. Robson and Sir Sandford, but were unsuccessful.

By those not members of the Club the most remarkable series was that made alone by Edward Franzelin of Bruneck, Tyrol, Austria, from Glacier House. The record reads as follows: "6th July, Mt. Sir Donald; 7th July, Asulkan Pass, Dawson Glacier; 8th July, Hasler Peak, Feuz Peak, Michel Peak (of Mt. Dawson), Donkin Pass; 9th July, Dawson Glacier, Asulkan Pass, Glacier House."

Next in importance was that by Prof. Holway, F. K. Butters and Howard Palmer, the latter a member of the Alpine Club. An account of their expedition to the ranges beyond the Asulkan Pass appears in the Journal, contributed by Professor Holway. The first ascent of Cyprian Peak of the Bishops Range was successfully accomplished by these gentlemen, who did not employ Swiss guides.

Climbs by others, assisted by Swiss guides, were also made of Mt. Sir Donald, Mt. Sifton and Truda Peaks. In the main range an English gentleman and lady made the ascent of Mt. Vaux. A few ascents were made of Mt. Stephen, Mt. Aberdeen, and several of the minor peaks surrounding Lake Louise. The foregoing practically embraces the mountaineering work of 1908.

REVIEWS.

THE ROCKIES OF CANADA.

BY WALTER DWIGHT WILCOX, F.R.G.S. ..

(Revised Edition, Putnam's).

Once again Mr. Wilcox has revised his well-known work on the Canadian Rockies. In this latest edition old matter has been deleted entirely to give room for new, and parts of the remaining text have been re-written. The illustrations in photogravure are many and lovely, about one-half now appearing for the first time. In the preface he modestly expresses a hope that the "general standard of illustration has been materially raised." But Mr. Wilcox has achieved much more: over and over again in these reproductions of mountain landscape, he has lifted photography into the realm of the highest art. With infinite patience and devotion he has composed his picture, choosing artistic foreground and magnificent perspective, and waited days or weeks or years for the atmospheric moment—the summer haze, the sky, the clouds in sunshine or in storm, and all the fickle phenomena of those "high midsummer pomps" in Alpine regions. His reward has been in such pictures as "Lake O'Hara" and the long shadows in the morning light; as the "View from Little Beehive," with its perfect foreground of fir and rock and sleeping tarn with the splendour of mountains and glaciers beyond bathed in tenuous haze; and the "Storm Scene," showing a tree's marked branches outlined clear against an angry sky. As he confides to the reader, Mr. Wilcox's method is entirely empirical, and he has thus learned the trick of reproducing with camera, atmospheric effects in Alpine landscape that challenge the brush and palette. Patience and passion for mountain beauty and life in the wilds are the chief elements in learning of that kind.

It has become a commonplace to refer to "The Rockies of Canada" as a charming book. Now, apart from its sumptuous illustrations, where lies the charm? I think it lies in this genuine, deep-rooted love of the mountains, and the unconscious candour with which the writer is always taking the reader into confidence. All his descriptions have that unmistakable note of genuineness, of frank and winsome confidence. Here, and here, and here, in these remote mountain-places may the reader come for refreshment of body and spirit. The writer is not outside his book, but in it. I cannot put myself in the place of a reader who never saw an alpine scene, but I think these chapters all inspire a longing for the distant mountains, even in those who refuse to travel.

Then, again, many summers' visits to the high Canadian "Playground" have resulted in that fine culture of the inward eye which Wordsworth more than any great teacher of Nature (unless it be Browning in "Pippa Passes") has emphasized. Mr. Wilcox, too, knows well, as Wordsworth knew, that "Nature never did betray the heart that loved her," that she will through all the years of earth "lead from joy to joy."

On opening the volume for a quotation from one of the many descriptions of mountain phenomena, the page turned at a passage on Lake O'Hara and, for an obvious reason, I am very glad. "Every season, and even each passing month, reveals new and unexpected cloud-forms, and now a certain type of high fog came pouring through the mountains that I have never seen before. At early dawn each day the peaks are concealed from view, by noon the black clouds, with edges of silver torn into fragments, are driving among the higher cliffs before a violent wind, while in the valleys there is perfect calm. Later in the day, bright clouds, riding above the highest peaks, move serenely across the blue sky.

"Night before last the coal-red fire of sunset seemed to set the mountains on fire, under steel-blue clouds. To-night it is colder. The glow of sunset rises higher and higher on the snowy summit of Lefroy, and the fleecy, melting clouds take on a bright tone in the darkening sky. A coal-black seam of rock on the upper ledges of the mountain now, for the first time, strikes my eye and startles me. How many years it requires to see the mountains, even such a scene as this in their entirety! A pink cloud-banner hangs for a moment to one side of an uplifted ledge of rock, while above there is a grey cloudlet, and even as I jot down these lines and look up, the rich pink has faded away, and sudden darkening takes place, and deep night seems to be hovering behind those eastern ridges. A frosty chill seemingly comes out of the forest and tells that the day is finished. The inverted trees in the green water are darkening, and across them the blue camp-fire smoke, down the shore, throws a mystic veil, and is wafted gently lakewards, amid complete silence.

"The colors are coming back again. An opaline cloud with milky border shows fire underneath, the sky is steel blue, and the uppermost glacial ice is the greenish-yellow of chlorine. Has the sun shot a last ray through some far-off pass in the Selkirks that makes this sudden illumination?"

The last sentence reminds us of Tyndall. We cannot but be impressed with the forthrightness and truth of this description. Mr. Wilcox himself will never forget the "ineffable pomp" of those two sunsets. They will often flash upon his inward eye in solitude or in the din of cities. But he is writing all that down that our minds may share the sights.

The volume contains much practical information out of his own exploring experiences. There are chapters on Hunting and Fishing, the Stony Indians, Mountaineering; but the greater part of the book deals with all that wonderful Lake Louise region, much of it Mr. Wilcox's own discovery, with Mt. Assiniboine, and with the less-known mountaineering ground leading to the great Columbia Ice-field.

"Stickeen, or the Story of a Dog," by John Muir, is a very little book, but it has the qualities necessary to keep the reader out of bed until he finishes it. It is all about an adventure, thrilling and terrible, on an Alaskan glacier, during a day of continuous storm. Stickeen is only a wee mongrel, but he has already joined "Rab," whose peer he is, and the choice company of immortal dogs. This, by virtue of his own devotion and daring heroism and Mr. Muir's beautiful, picturesque prose. "Stickeen" will surely take its place as a little classic in the literature of glaciers and of dogs.

"Some Adirondack Paths" is the title of three papers by Mr. F. W. Freeborn, published in "Appalachia," and now bound separately in a neat volume for the library of the Alpine Club of Canada. All three papers describe various paths to picturesque summits enclosing a lovely valley in the Adirondacks. Mr. Freeborn is a veteran of the mountain trails. He has an eye for locality and a genius for accuracy. Any reader of his narrative needs no better guide book. He will be directed by this landmark and that, and he will know to the minute how long it ought to take him to make any round excursion from the Tahawus House in Keene Valley to Mt. Baxter, the Giant, or any summit in the neighborhood. There is also a fine sketch map drawn by the writer who, as the prettier eastern word is, writes "brook" instead of "creek" to indicate the streams. But the most poetical word of all is "burn" and written only north of the Tweed.

E. P.

OFFICIAL SECTION.

REPORT OF HON. SECRETARY.

In the year which closed on March 28th, 1909, the third of its existence, the Alpine Club of Canada has made substantial progress. At this writing the membership of all grades stands at 447. Notable in the increase are four Associate and three Life members; also an Honorary member, Mr. Walter Dwight Wilcox, F.R.G.S., author of "The Rockies of Canada."

The Annual Meeting took place on July 10th, 1908, at the Camp in Rogers Pass. Its chief feature was the President's address, which dealt in considerable detail with the proposed Club House, with incorporation and with the prospects of the Club. Officers were elected for the ensuing term of two years, those newly elected being: Messrs. J. D. Patterson and M. P. Bridgland, as Vice-Presidents; C. W. Rowley as Treasurer; and D. H. Laird, Stanley L. Jones and Frank Yeigh as Advisers on the Executive Committee.

Executive meetings of the year were as follows: At a meeting during the camp the names of Mesdames Wheeler Burns and Rowley were added to the Executive to form a Building Committee. Resolutions were carried that the Library subscribe to the Champlain Society for its rare and valuable books, not otherwise obtainable, on Canadian History; that copies of the Journal be sent to the leading Clubs; and that a handbook containing the constitution and a list of members be prepared.

On December 15th, in Calgary, the Executive received from the auditors, Messrs. J. B. McLaren and J. W. Kelly, a present of a handsome loose-leaf ledger and journal, and passed a hearty vote of thanks to the donors. Other resolutions were that the word **Alpine** be registered as the address of the Club with telegraph and cable companies, and that the A.B.C. code, fourth edition, be adopted as the Club's code; that the constitution be strictly adhered to in regard to applications for membership when qualifications were uncertain; that action be taken concerning all arrears and that the names of all members not complying with the constitution in this matter, after notification of such arrears, be struck off the list of membership. A letter was read from Mr. W. D. Wilcox urging the Club to take action towards preserving the natural beauty of those mountain places despoiled by tourists and others, and offering tangible assistance thereto. It was decided to bring the matter to the notice of the Dominion Government and to thank Mr. Wilcox for his kind offer. The sum of \$50.00 was voted towards the library.

On February 2nd, in Calgary, the President reported on his series of lectures in the Club's interest at Revelstoke, Vancouver and Victoria. A letter from Vancouver was read concerning the eligibility of educated Chinese for membership. It was agreed that the constitution did not forbid. In response to an appeal from Mr. Harrington Putnam, Vice-President of the American Alpine Club, for a contribution towards a fund for one of Miss Peck's disabled guides (a most pitiable, most worthy case), the sum of \$25.00 was voted. At this meeting the offer was made and accepted of a loan of the \$2,000 still required before it was possible to proceed with the Club House Building.

On March 8th, in Calgary, a letter was read from the Secretary for the Department of the Interior offering the Club water-rights at the Middle Spring, Banff, for an annual tax of five dollars. A stereopticon lantern was received and accepted with resolution of thanks, from Mrs. P. Burns. An offer of sectional book cases at a considerable discount for the Club House library was accepted. It was agreed to admit Subscribing members to the Club House camp during the season of 1909, at the rate of \$3.00 per day.

On March 24th, in Calgary, the Executive was informed that the assistance of the President and his survey party could not be afforded the Club at the General Camp of 1909, as heretofore. It was decided to use every effort to induce the Minister of the Interior to alter his decision.

The outstanding feature of the year's business is the erection of a Club House at Banff, which, ere this report is in the hands of members, will be finished and occupied, giving permanent visibility to national mountaineering in Canada. The necessary funds have been provided in the form of debentures purchased by members; and, although, as a rule the response was generous, had one member not come forward with a loan of \$2,000, the Club House would not have been built this year. This ought not to be. A more general distribution of the loan would have prevented the burden falling too heavily on one purse. Ten dollars each from the Club's members, and there had been no such necessity. Special thanks are owing to Mrs. Wheeler, wife of the President, to Mrs. P. Burns and to Mrs. C. W. Rowley, Associate members, for their activities in superintending the furnishing of the Club House, as well as for their generous gifts; to Mr. George Vaux, Sr., and family, of Philadelphia, for their gift of the handsome fireplace in the assembly room, erected as a memorial to the late William S. Vaux, Jr., whose scientific studies of Canadian glaciers, in conjunction with his brother, George Vaux, Jr., have been so widely published and so greatly appreciated by the scientific world; and to all others who have helped with donations in money or in kind.

In February, by Act of the Alberta Legislature, the Club was incorporated under the legal name "The Alpine Club of Canada," with power to hold property to the value of \$100,000, and to borrow money to the maximum of \$25,000.

All legal work in connection with the preparation and passage of the Bill was a generous gift to the Club from Mr. Stanley L. Jones, of Calgary.

The Executive Committee is to be commended upon the appointment of Mr. S. H. Mitchell as permanent Executive Secretary, an official the overworked President could no longer do without.

Although in its youth, the Club has already a healthy offspring in two local organizations: the Mountaineering Club of British Columbia, with headquarters at Vancouver, whose name implies a field of operation covering the whole Province; and the Mountaineering Club of Revelstoke, whose activities will be confined mainly to the Selkirk and Gold Ranges and their glaciers in the same Province. Than the Selkirks there is no choicer mountaineering ground in Canada.

Among the social functions of the year were: banquets at Revelstoke and Vancouver, where Mr. and Mrs. Wheeler were guests of honor; a dinner at Winnipeg in honor of Mr. S. H. Mitchell; a reception to Toronto members at the house of Mr. and Mrs. Frank Yeigh; anniversary functions at Vancouver, Revelstoke, Calgary and Winnipeg; and other gatherings of a social sort, purely alpine.

It is the painful duty of the Secretary to make reference to the fatality occurring on Mt. Avalanche during last summer's camp. While deeply regretting the death of the young lady and sympathising with her relatives, all members attending the camp of 1908, felt the warning profoundly. Utmost caution and obedience are necessary to safety, even on so-called easy mountains. And experienced mountaineers everywhere, urge upon new climbers the doctrine of vigilance, a doctrine they themselves have learned well.

Knowing the inconveniences suffered by the Hon. Treasurer and the Executive Secretary, it is in the Secretary's heart and mind to urge upon all forgetful members the morality of promptness in paying their annual fees. For it is more than a question of courtesy, even one of ethics. Also, it would save much valuable time, stationery and postage, if persons intending to drop out of the Club would kindly notify the Executive Secretary of such intention.

Not least in the report are the acknowledgments due to the Canadian Pacific Railway for liberal concessions in rates, the loan of Swiss Guides, and kindly help from its various departments; to the Legislature of Alberta, for its ample contribution of \$1,000 towards the expenses of the General Camp of 1909, and for the refund of the fee of \$100, payable on the Incorporation of the Club; to Mr. E. H. Riley, M.P.P., for his able presentation of the Bill of Incorporation in the Alberta Legislature; to the Department of the Interior for permission granted to the President and Vice-President Bridgland to attend the coming camp and welcome the visitors from beyond the seas. We take it as a grateful sign that the enormous potentialities of the Canadian Alps are not unreckoned.

Though mountaineering is as wide as East and West, knowing in its essence no nationality nor bounds of kingdom or commonwealth; though one genuine mountaineer has a noble interest in common with every other genuine mountaineer, whatever his clime or nationality, there may be occasions when the Alpine Club of Canada will feel in its heart the tug of Empire. The visit this summer of veteran British climbers, members of the oldest and most distinguished Alpine Club in the world, is such an occasion, and our welcome has in it an element of national kinship. We hope this visit may become historic in that it will initiate annual expeditions to the Rockies under the auspices of the mother of organized mountaineering.

One word more. During the past year there has been more climbing in the Rocky Mountains than ever before, and mainly by members of the Alpine Club; many living in the mountains, or not far off, climbing early and late in the season; and a prudent beginning has been made in winter climbing. The mountaineering impetus is felt in nearly every province of the Dominion, and an increasing number, who else would seek the populous Swiss Alps, are now turning towards the larger Alpine Playground of their own country.

Respectfully submitted,

Elizabeth Parker, Secretary.

REPORT OF LIBRARIAN.

The Club Library has now fifty-two volumes; only nine of these were received this year. At a meeting of the Executive Committee at Rogers Pass it was decided to apply for membership in the Champlain Society at ten dollars (\$10.00) per year. This we were able to do and, by the payment of back fees, we secured the books published previous to this year. They are: Lescarbot, *A History of New France*, Vol. 1, by Grant and Biggar. *The Description and Natural History of the Coast of North America (Acadia)*, Nicola Denys—translated by William F. Ganong, Ph.D.; and *Documents Relating to the Seigniorial Tenure in Canada*, by William Bennett Munroe, Ph.D., LL.B. The Champlain Society proposes to publish two works a year for the benefit of its members only. The books will never be put upon the market, and there will be no reprint. We have also subscribed to the *University Magazine*.

At an Executive meeting held in Calgary on December 15th, 1908, fifty dollars (\$50.00) was voted for Library expenses. A portion of this has been expended.

We are indebted to Mr. Walter Dwight Wilcox for the gift of his revised work, "*The Rockies of Canada*," which is of great interest to us, as it deals especially with the district around Lake Louise.

Mr. James Outram has made the Club a presentation of his book: "*In the Heart of the Canadian Rockies*," a book dealing largely with what is still practically unknown country. The index is, on a small scale, an encyclopedia of the Canadian Rockies as now known to the alpinist.

The Hon. Frank Oliver, Minister of the Interior, has presented the Club with a copy of "*The Atlas of Canada*," than which no gift could be more useful or acceptable.

"*The Matterhorn*," by Guido Rey, has been acquired by purchase.

The Hon. Secretary has presented the Club with a little book called "*Stickeen*," a description of the Alaskan Glaciers, by John Muir, for whom the great Muir Glacier was called.

Mr. F. W. Freeborn has kindly given the Club Library a copy of "*Some Adirondack Paths*," written by himself and furnished with maps: a most valuable handbook for wanderers among those hills.

New Exchanges have been made with "*The National Geographic Society*," *French Alpine Club*, *Swiss Alpine Club*, *Austrian Alpine Club*, *The Alpine Club of Japan*, *Societe des Touristes du Dauphine*, *Smithsonian Institute* and the *Rock and Fell Climbing Club*. We are indebted to the *French Alpine Club* for its kindness in sending us files of their journal, *La Montagne*, published monthly, dating from January, 1906, until the present date. In exchange for our journal, F. W. Faxon, editor of the *Annual Magazine Subject Index* for 1908, has listed the *Journal* in that Index.

The following is a catalogue of books, exchanges and publications in the Library of the Alpine Club of Canada:—

CATALOGUE.	PRESENTED BY	
The Selkirk Range, Vols. I and II.....	....A. O. Wheeler..	A. O. Wheeler
Mountaineering	Dent..	S. H. Mitchell
The House on Sport.....	Composite Authorship..	" "
From Old to New Westminster.....	....Sir Sandford Fleming..	Sir S. Fleming
Climbing in the Himalayas .....	....J. Norman Collie..	Dr. Collie
Climbs and Explorations in the Canadian Rockies.....	Collie and Stutfield..	" "
Ascent of Mt. St. Elias.....	....Filippo de Filippi..	Tom Wilson
Voyages et Aventures dans Alaska.....	....Frederick Whymper..	" "
The Land of Cliff Dwellers.....	....Frederick Chapin..	" "
Mountaineering in Colorado.....	....Frederick Chapin..	" "
Chamonix and Mt. Blanc.....	....Edward Whymper..	Edward Whymper
A Guide to Zermatt and the Matterhorn	Edward Whymper..	" "
Camp-fires in the Canadian Rockies.....	....Hornaday and Phillips..	Mrs. Parker
Glaciers of the Alps.....	Tyndall..	" "
The Playground of Europe.....	....Sir Leslie Stephen..	" "
The Alps from End to End.....	....Sir Martin Conway..	" "
Stickeen	John Muir..	" "
Glaciers of the Canadian Rockies and Selkirks.....	W. H. Sherzer..	Dr. Sherze
Mountain Wild Flowers of Canada.....	....Julia W. Henshaw..	Mrs. Henshaw
Alpine Flora of the Canadian Rocky Mountains .....	....Stewardson-Brown and Schaffer..	Mrs. Chas. Schaffer
Among the Selkirk Glaciers.....	....W. Spottswood Green..	Ferdinand Meinecke
California and Alaska, and over the Canadian Pacific Railway.....	....William Seward Webb..	W. T. Robson
Siberia.....	Samuel Turner..	Samuel Turner
Appalachia, Vols. VII, VIII, IX and X..	By Purchase	
A Trip Round the World, Vols. I and II..	....Sir George Simpson..	" "
Wanderings of An Artist.....	Paul Kane..	" "
Mission de l'Oregon.....	De Smet..	" "
Saskatchewan and the Rocky Mountains, 1875	Southesk..	" "
Astoria, 1836	Washington Irving..	" "

The Northwest Passage by Land, 1863....		
.....Milton and Cheadle..	"	"
Impressions of a Tenderfoot, 1890.....		
.....St. Maur..	"	"
The Columbia River, Vols. I and II, 1832..		
.....Ross Cox..	"	"
The Solitary Hunter, 1859.....	Palliser..	"
Camps in the Rockies, 1883.....		
.....Baillie-Grohman..	"	"
Mountain and Prairie, 1880.....		
.....Daniel M. Gordon..	"	"
The Great Lone Land.....	Butler..	
A Voyage Through North America,		"
1801	Alexander Mackenzie..	"
The Matterhorn.....	Guido Rey..	"
A History of New France, Lescarbot,		
Vol. I.....	Grant and Biggar..	"
The Description and Natural History of		
the Coast of North America		
(Acadia), Nicola Denys, translated		
by.....	William F. Ganong, Ph.D..	"
The Documents Relating to the		
Seignorial Tenure of Canada, by		
..Wm. Bennett Munroe, Ph.D., LL.B..	"	"
The Rockies of Canada.....		
.....Walter D. Wilcox..	Walter D. Wilcox	
In the Heart of the Canadian Rockies....	James Outram	
The Atlas of Canada.....		
.....The Department of the Interior..	Hon. Frank Oliver	
Some Adirondack Paths..	F. W. Freeborn..	F. W. Freeborn

EXCHANGES.

Alpina Americana.
 Sierra Bulletin.
 Alpine Journal.
 The Mountaineers.
 Scottish Mountaineering Club Journal.
 La Montagne.
 Smithsonian Institute Magazines.
 Journal of the National Geographic Society.
 Annual Magazine Subject Index.
 L'Echo des Alpes.
 Annual of the Dauphine Tourist Society.
 Journal of the Austrian Alpine Club.
 Journal of the Alpine Club of Japan.

PUBLICATIONS.

Modern Glaciers Wm. S. Vaux
 The Great Glaciers of the Illecillewaet... Geo. and Wm. S. Vaux
 Glacial Studies in the Canadian Rockies and Selkirks...
 W. H. Sherzer
 University Magazine.
 Rod and Gun in Canada.

Respectfully submitted,

April 12th, 1909.

JEAN PARKER, Librarian.

REPORT OF 1908 CAMP.

The third Annual Camp of the Alpine Club of Canada was pitched directly upon the summit of the Rogers Pass, at an altitude of 4,350 feet above sea level. The site was not an ideal one in some respects, but none other was available. Sites that will admit of camps on so extensive a scale are scarce in the narrow, thickly-timbered valleys of the Selkirks, where the bottoms are filled by rushing torrents, often confined between rock walls. Although the picturesque groups of spruce of the Yoho Camp, and the forest glade and rushing torrent of Paradise Valley Camp were missing, there was plenty of room, and the very contrast of the scene to that of previous years proved an attraction: while the towering heights of Mt. Rogers, the Swiss Peaks, Hermit Mountain and Mt. Tupper at one end of the pass, and the distant snow-fields and glaciers of the Asulkan, showing between the pyramids of Cheops and Avalanche, at the other, presented a wide-spreading reach of magnificent alpine scenery that was not to be had from the immediate site of either of the preceding camps.

Though a number of mountain streams were in the near vicinity, there was no water directly at the camp. The difficulty was overcome by the ingenuity of Mr. J. P. Forde, resident engineer for the mountain division of the Canadian Pacific Railway. Directly in front of the camp lay a snow-shed some half a mile in length. Along its top ran a line of water piping to convey a supply in case the shed should catch fire from a spark from an engine, a bush fire, or any other cause: for shed building is very costly and fire a serious menace. It took a gang of railway men about two hours to lay a line of piping to each of the various quarters of the camp, and some modern taps were in use in three different places, providing cold water in the early morning and hot water during the day when the sun was shining, owing to the heating of the piping on the roof of the shed. A small but clear and ice-cold spring supplied the camp with drinking water.

A feature of the camp for the third year was that with the exception of two tents loaned by Mr. Forde, we were under our own canvas, and it requires quite a lot to house and provide comfortably for two hundred persons, the number for which preparation had been made.

Owing to the fact that the grade of the railway line on the approach to, and over, the pass was being changed, several camps of foreign workmen were close at hand, and it was thought advisable to have two special constables on duty. It is pleasing to relate that no greater demand was made upon their authority than to keep the big camp fire well supplied with fuel and to watch the tents and awnings and tighten the guy

ropes when necessary. The foreigners—Japanese Coolies—attended strictly to their own business and nothing was seen of them.

The weather while camp was being pitched was very bad, but before the arrival of the visitors, cleared up and, for the Selkirks at that season, was generally fine, only one really wet day and a few minor showers being experienced.

The camp opened officially on July 7th and closed on July 16th. A number of members came a day or two earlier and assisted in pitching and brushing the tents, erecting flag-poles, and generally getting things in order. When all was finished the view from the top of the snow-shed was an imposing one. On a level dip in the centre was the dining pavilion, an awning erected on a scaffolding of poles, a new one, large enough to cover the entire assemblage, including the dining tables and cook tents, the ladies' tea tent, the official notice board, the post office, and still leave room for all to gather during the storms. Beyond it in the same dip, arranged in symmetrical order, were the camp fire—the altar of worship where the fire never quenched during the period of devotion to the white peaks surrounding it—the president's and secretary's official tents, the art exhibit tent, and behind, on the hill-side, the scattered tents of the various officials and retainers of the camp work, and of those who had brought their own canvas. On either side, on gently rising slopes, were the Ladies' and Gentlemen's quarters, groups of white bell tents set in commanding positions.

The attendance was the greatest that had yet been experienced, one hundred and seventy-seven persons being placed under canvas. This number represented a very considerable section of the globe, the distribution being as follows: In Canada: BRITISH COLUMBIA—Armstrong, Cranbrook, Glacier, Golden, Greenwood, Kelowna, New Westminster, Revelstoke, Rossland, Vancouver, Vernon. ALBERTA—Banff, Bawlf, Calgary, Edmonton, Hardisty, Lacombe, Leduc, Lethbridge, Medicine Hat, Millarville, Morley. SASKATCHEWAN—Nokomis, Yellowgrass. MANITOBA—Portage la Prairie, Winnipeg. ONTARIO—Elmvale, Ottawa, Port Hope, Toronto, Waterford, Woodstock. QUEBEC—Montreal.

From the United States of America: CALIFORNIA—Berkeley. ILLINOIS—Chicago, Galesburg. MASSACHUSETTS—Boston, Tuft's College. MINNESOTA—Minneapolis. NEW YORK—New York, Rochester. OREGON—Portland. RHODE ISLAND—Warren.

From over seas: ENGLAND—Bristol, Buckhurst Hill, Sheffield. HOLLAND—Rotterdam. SWITZERLAND—Interlaken.

Representatives from the following Alpine Clubs were our guests: The Alpine Club of England, the American Alpine Club, the Netherlands Alpine Club, the Appalachian Mountain Club, and the Mazamas of Portland, Oregon.

The following messages of greeting were received:

From Sir Sandford Fleming, Hon. President: "On behalf of the first Canadian Alpine Club, an old memorial of the watershed of the Selkirks, I send, after an interval of twenty-five

years, cordial and kindly greetings to the new Alpine Club now assembled in the same locality. May every member return home with renewed health and only pleasant memories of the everlasting Selkirk mountains."

From J. D. Patterson, Vice-President: "I sincerely hope good work may be done from the camp in the Selkirks. Most sorry I cannot attend. Greetings and good luck to all of you."

The accompanying graphic reply to an invitation to be the Club's guest was received from Sir William Van Horne.

Kindly greetings were also received from the Right Hon. James Bryce, British Ambassador at Washington, U.S.A., Mr. Edward Whymper, the Alpine Club of the Netherlands, the Mazamas of Portland, Oregon, and many others.

The third annual general meeting was held under the pavilion, the principal business being the election of officers to serve for the second term of the Club's existence. Other important business was transacted, chief among which was the decision to build a suitable Club House headquarters at Banff and to raise the money required by the issue of Club debentures to the extent of six thousand dollars. The result of such action is, at the time of writing this report, embodied by a handsome building which stands forth picturesquely against the pines on the side of Sulphur Mountain, one of the most prominent features of the capital of the National Rocky Mountain Park, and a fitting symbol of the earnestness with which Canadians have taken up alpinism in their own snow-clad ranges of mountains.

Assistance was again given by the Dominion Government, by the Government of Alberta, and by the Canadian Pacific Railway. To the last mentioned especially are we indebted for the loan of two Swiss guides for the period of the camp. Three Swiss guides and one Swiss porter were in attendance, but for the use of the third guide the railway company received payment at the regular tariff rate.

Taken as a whole, the camp was the busiest and most enthusiastic yet held, and the attendance exceeded all previous years.

REPORT OF CHIEF MOUNTAINEER.

The mountaineering staff of the General Camp was practically the same as in previous years: M. P. Bridgland in charge, assisted by H. G. Wheeler and E. O. Wheeler. The two Swiss guides, Edouard Feuz, Jr., and Gottfried Feuz, of Interlaken, were again loaned to the Club by the Manager-in-chief of the hotel system, Mr. Hayter Reed. In addition, a third guide, the veteran Edouard Feuz, Sr., was hired by the Club at the usual tariff rate of the company. A Swiss porter also was hired by the Club. A number of the Club's members rendered valuable assistance on the various climbs and expeditions, notably P. D. McTavish, J. P. Forde, Rev. J. R. Robertson, D. N. McTavish and Rev. A. M. Gordon.

Montreal 25th May
1908

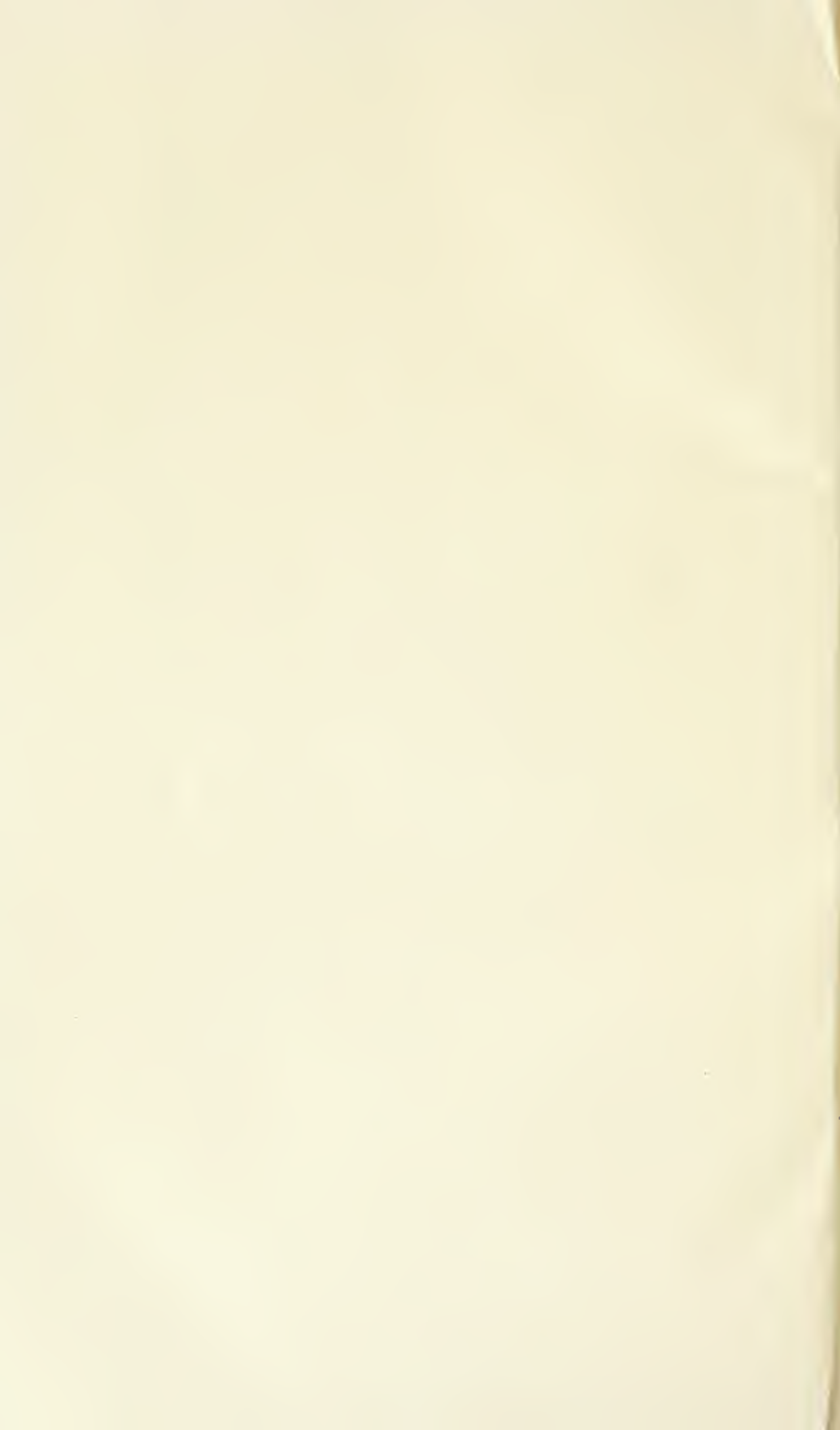
513 SHERBROOKE STREET WEST

Sir William Van Horn regrets
that he is unable to accept
the kind invitation of the
alpine club of Canada to
be the guest of the club
at its third annual camp
at Rogers Pass from the 7th
to the 15th July.

aside from the consideration
of engagements which



stand in
his way
he feels that, for obvious reasons,
he would not shine on such
an occasion.



The official graduating climbs were Rogers Peak of Mt. Rogers (10,536) and Mt. Hermit (10,194). It is possible to make either of these peaks and return in one day from the site of the Camp, but it was considered too strenuous for those who were making graduating climbs; consequently arrangements were made to spend a night at the hut at timber-line on Mt. Rogers, and tents were placed close by to accommodate the overflow from the hut.

In all, fifty-seven graduated to Active membership as follows:

ON MT. ROGERS.

July 7th.

Thurlow, Rev. Fraser.
Gutsell, R. L.
Hamilton, W. G.
Webber, F. G.
Patteson, T. E.
Patteson, Miss A. E.
Farran, F. St. C.
Forrester, D.
Smith, W. N.

Ford, A. K.
Huffman, J. C.
Main, Rev. C. O.
Garrow, Miss.
Burwash, Rev. E. M.

July 12th.

Haggen, G. L.
Muckleston, Miss.
Pollock, J. T. D.
Buchanan, F. G.
Taylor, E. L. T.
Greenway, Miss C. M.
Greenway, Miss Grace.
Alexander, J. H.
Morrison, T.
McCoubrey, A. A.
LeFeuvre, Miss E.

July 11th.

Macdonnell, Rev. Logie.
Macdonnell, Mrs. Logie.
Rogers, R. H.
Thompson, W. H.
Dowler, F. A.
Reikie, K. W.
Reikie, Rev. T. T.
Miller, A. E.
Logan, Capt. J. J.
Logan, Mrs. J. J.
Copeland, R. R.
Humphrys, E.
Parslow, Miss B. L.
Hood, R. B.
Stanton, Miss.
Mitchell, C. H.
Cooke, J. R. N.
Culp, N.

July 13th.

Foote, Miss S. L.
Maus, Miss D. M.
MacKay, Miss M. A.
MacKay, Miss J. C.
Morrison, Miss A. M.
MacFarlane, Miss G.
Tansley, H.
Reading, A. L.
Robins, K. N.

ON MT. HERMIT.

July 12th.

Richardson, C. A.

ON SIR DONALD.

July 8th.

Gordon, C. J. M.

ON MT. STEPHEN.

July 16th.

Crawford, Dr. Mary
Patterson, Miss Jean
Halstead, John.

ROGERS PEAK.

(10,536 ft.)

To make the ascent of Rogers Peak, the party would leave the camp the previous day either shortly before or after noon and spend the night at the hut at timber-line. The hut could be reached from the camp easily in from three to four hours. The trail leading up to it is somewhat steep, but presents many magnificent view points. Owing to the date of the camp being early for the Selkirks, the trail was wet and the frequent travel of the ponies to and fro made the trail in very bad condition. The ground surrounding the hut and camp also was none too dry and generally the comfort available was not so great as it would have been later in the year. A cook was stationed at the camp and notwithstanding the drawbacks every one was cheerful and had a most enthusiastic and enjoyable time. The ascent was generally made by the southern arête. It presents a nearly even mixture of rock and snow work and usually took from four to five hours from the hut camp. The return was made down the southern face of the mountain and presented a series of most exhilarating glissades and a trip across Swiss Neve. While no particular difficulties or dangers were involved the climb was of quite sufficient magnitude to test the courage and perseverance of those attempting it and to entitle the graduates to the degree of Active membership.

At night the camp fire at the hut could be seen from the main camp gleaming high up on the side of the mountain, and daily between 9 a.m. and 10 a.m. many field glasses at headquarters were keenly on the watch to discern the tiny figures of those who had achieved the summit, silhouetted against the sky.

MT. HERMIT.

(10,194 ft.)

In contrast with Mt. Rogers, Mt. Hermit is distinctly a rock climb and a very interesting one. Its base is reached most easily by an ascent of Rogers Glacier and a tramp across the Tupper Neve. In addition to some splendid rock work, it presents one of the finest views of the entire range.

MT. SIR DONALD.

(10,808 ft.)

It was early in the season for this mountain and the snow was in a dangerous condition for avalanching. Notwithstanding, two ascents were made under the guidance of Edouard Feuz, Sr. On the second of these ascents the newly discovered chimney was used, by which the couloir of the falling stones can be avoided. There were many applicants for this climb, but owing to the condition of the mountain only the best men were allowed to undertake it.

MT. AVALANCHE.

(9,387 ft.)

This is but a low and easy peak directly south of the camp across the railway track. An ascent was arranged the second day after the camp opened, more for the purpose of training than any other. No one would have even suggested the possibility of the sad tragedy that occurred, resulting in the death of Miss Helen Hatch, of Lethbridge, Alberta.

No climbs other than those named were made at the time of the camp, owing to the large number of graduating members and the fact that the qualifying climbs required two days and compelled three of the best guides to remain at the Rogers hut; also to the necessity for calling in all guides to recover the body after the accident. Immediately subsequent to the camp, however, several others were made by parties of members who had been present; notably, Mt. Tupper, of which an account is given in this number of the Journal. Mt. Stephen also was climbed by a party under P. D. and D. N. McTavish, and on this occasion several graduating members qualified who had been crowded out at the general camp. A record of the climb will be found in the Alpine Notes.

M. P. Bridgland, Chief Mountaineer.

EXPEDITIONS.

Apart from actual mountain ascents there were a number of daily expeditions all of which were patronized.

Probably that of greatest interest was up the Asulkan Valley, where an auxiliary camp was set with a man in charge to look after the cooking, camp fires, etc. The tents were placed in the woods not far from the foot of the glacier, and from this point three separate expeditions radiated.

The easiest and most popular was that up the glacier, and across the snowfield to the summit of the Asulkan Pass, to get a glimpse of the snow giants of the Dawson, Bishops and Purity Ranges, lying beyond the deep trough of the Geikie Glacier, flowing 2,800 feet below the pass.

The second expedition followed the same route, but before reaching the pass turned to the left and ascended the Snow Dome of the Asulkan. It then traversed the ridge for some distance and descending to the Illecillewaet Neve returned to the main camp via the Illecillewaet Glacier.

A third expedition turned to the right from the Asulkan Neve and climbing to Sapphire Col traversed the Dome, the Rampart, Mts. Afton and Abbot and descended to Glacier House via Marion Lake. This was a somewhat arduous piece of work and was only made the once. Two of the party were ladies, the Misses Adams and Springate, of Winnipeg. Glacier House was not reached until long after dark.

ILLECILLEWAET NEVE.

Another expedition consisted of a visit to the Illecillewaet Glacier and Neve. It was in charge of Edouard Feuz, Sr., and proved most popular owing to the reputation of the guide. The characteristic features of the icefall, its seracs, moulins and crevasses were pointed out, and a climb made to Perley Rock and to the neve perched on a bold rock escarpment five thousand feet above the Beaver River, winding a silver thread in the valley below. The magnificent view of the endless pyramids, towers and domes, snowfields and icefalls of the Spillimacheen and Dog-Tooth Mountains from this point of vantage was alone worth the labor.

THE SELKIRK CAVES.

A daily expedition left the main camp for the Caves. They are situated in Cougar Valley at a distance of about eight miles from Rogers Pass summit.

Two routes were available; the easiest by pony trail, via the Loop and Lower Cougar Creek Valley; the more strenuous, on foot, via the upper waters of Bear Creek and Baloo Pass. This last, owing to the high stage of the streams, was full of adventure and rendered the stalwart of the Club gloriously happy.



Harmon, Photo.

ROGERS PASS CAMP.

A camp had been established at the Caves with a cook in charge. The log cabin erected by the Government furnished sleeping quarters. Unfortunately, the time of the year was too early for an entry to the largest series of the caves, the Gorge series, owing to Cougar Creek, which flows through them, being at flood. The caretaker, however, took the several parties to the Gopher Bridge and Mill Bridge series, each, of which has its own striking characteristics; the former of close proximity to a rushing underground torrent and a spectacular magnesian light view of a subterranean waterfall, and the latter, a series of carved circular potholes, descending, pocket by pocket, to a large chamber, named the Auditorium; also of twisting, tortuous passages winding in the marbelized limestone.

The hanging valley of the upper Cougar is alone worth the visit. It is a typical glacier-lined valley, surrounded by sharp, snow-clad peaks and black overhanging cliffs. There is rushing water everywhere, and the valley bottom and lower slopes are carpeted with heath and heather, and mountain flowers of varied brilliant hues are seen on all sides. The calls of the hoary marmot and little Chief hare break the solitude, and high up on the mountain sides flocks of goat browse on the grassy tufts or wend in single file across the snowfields. Here also, among the fallen masses of rock debris, is a favorite haunt of the Grizzly, and they are often seen by the more inquiring visitors.

MINOR EXPEDITIONS.

For those who did not desire strenuous work a number of expeditions were organized daily, including the usual short tramps from Glacier House, viz: To the Illecillewaet icefall, to Marion Lake and Observation Point to Cascade Summerhouse, Avalanche Crest, Glacier Crest, the Loop and a number of others. Many of these could be made or partly made with saddle ponies and thus reduced to the least possible exertion. A full supply of saddle ponies were always on hand.

THE ACCIDENT ON MOUNT AVALANCHE.

It happened on Wednesday, the 8th July, the day after the official opening of the Camp. Among the parties sent out that day was one to make the ascent of Mt. Avalanche by the north-west face. The party was composed as follows: E. Oliver Wheeler, of the camp staff of guides in charge; P. D. McTavish, one of the Club's best men, assisting; the Rev. Alex. M. Gordon, also one of the Club's experienced men; G. E. Howard, the English Alpine Club's representative, who had had experience of mountain climbing in Switzerland; A. H. Ford, of Minneapolis, a novice; Miss E. M. Parslow, of Calgary and Miss Helen Hatch, of Lethbridge, both of whom had made climbs previously, the former at the Paradise Valley Camp of 1907, and the latter of Crow's Nest Mountain in the spring of 1908.

Shortly after luncheon one of the boys—scouts we call them—came to me and said Mr. P. D. McTavish wished to see me in Tent No. 1. For a moment I did not grasp the import of the message and then I realized that something dreadful had happened. I found Mr. McTavish in a state of complete prostration and unable to articulate more than the words: "It has happened." "Oh! it has happened!" The nervous shock combined with his very rapid descent of the mountain had left him almost devoid of power to speak, and I feared for a few minutes that all the party except himself had been killed. Gradually I drew from him the fact that Miss Helen Hatch alone had fallen. His statement, in substance, was as follows: The party commenced the ascent directly opposite the camp and had reached the summit of an outlying spur, scarcely above timber-line. The ground was still covered with grass and heather and small brush, the last vestiges of timber growth were scattered here and there, with outcrops and ledges of rock showing in places. It was necessary to descend from this shoulder to a snow-filled couloir leading to an amphitheatre, also filled with snow, across which rose the main peak of the mountain, where the real climbing commenced. We had begun the descent but were not roped, as no necessity had as yet arisen for such a precaution. Coming to a patch of snow, Oliver turned to Miss Hatch, who was next him, and said: "Wait a minute until I get down and see if it is all right, you may have to go round." He then started to glissade downwards. As he started, Miss Hatch, full of the exhilaration of the climb and ignorant of danger, called, "I am coming. Look out!" and, taking a little run, shot down the snow, lost her footing and, as Oliver reached the bottom, went by him with tremendous velocity. Hearing her call he checked himself, turned swiftly and grabbed for her. Alas! she had gone wide and he only touched her outstretched hand. She passed on down the slope from ledge to ledge, gathering velocity as she fell and, at a depth of 120 feet, dropped over the final ledge, twenty feet perpendicular, to the snow-filled couloir. She had not uttered a sound and must have fainted the moment she realized what had happened. On reaching the couloir she slid rapidly down its surface. Had she continued down the full length of it and of the wider depression which lay beyond, she might not have lost her life, but alas! the snow stratum on which she had fallen curved inwards to the cliff and she dashed head-first into a projecting spur of rock, where the body came to a rest. The moment it was realized that she was falling, Oliver and McTavish dashed down the slope, arriving at the perpendicular edge almost as the body dropped over. This fact alone would show that the place was not a dangerous one from a mountaineering point of view.

Having obtained from Mr. McTavish the facts as fully as he could relate them, I immediately sent a messenger post haste to the Rogers hut to bring down the two Swiss guides, Edouard and Gottfried Feuz, the moment they should return from that day's ascent of Rogers Peak. I also sent a messenger to bring Edouard Feuz, Sr., from Glacier as soon as he returned from his expedition. Then, having given full instructions for

a party to ascend the mountain at day-break to bring down the body, I got some provisions and a rope in a rucksack, and, taking one man, ascended to find the members of the party who had stayed at the scene of the accident.

We struck the northern precipitous side of the deep depression or ravine leading from the amphitheatre above referred to by Mr. McTavish, into which the snow couloir led. We could see below several figures standing around a dark object on the snow near where it ended at a great boss of rock in the middle of the ravine. From their location we gathered that the work of bringing down the body had already been begun. We shouted and descended the precipice rapidly to the snow. Crossing this we soon came to where the tracks showed plainly. Now sending my companion down to the party below, I waited while the Rev. Mr. Gordon joined me and, accompanied by him, followed the trail, foot by foot, to the spot where Miss Hatch first jumped on the snow. My examination, a minute one, verified almost absolutely Mr. McTavish's statement, and I realized with the most intense sorrow that a charming and plucky young life had been thrown away owing to a moment of impetuosity.

Returning to the group below, I found that Oliver, Miss Parslow and Mr. Howard had returned to the camp, leaving Mr. Gordon and Mr. Ford in charge. A rude litter had already been made and now by its aid we carried the body to timberline and covering it carefully with balsam bush, built a fire close by and prepared to wait for the party coming up. It rained steadily all night, but a canvas covering I had brought up furnished some protection. Shortly after daybreak a shout from the cliffs notified us that the expected party was close at hand, and soon its members came over the snow towards us on the run. Among them were the three Swiss guides, Geoffrey Howard, the plucky Englishman, who only the day before had been present when the accident occurred, Manuel Dainard and Closson Otto, two of the oldest outfitter guides in the mountains, and a number of volunteers from the members at the camp. A suitable litter was rapidly constructed and the light weight supported by willing arms was carried on burly shoulders down the steep slopes of the mountain. At the track the section men were waiting with a hand-car and the sad and dripping little cortege, for it was raining heavily, wound its way slowly to Glacier House. In the meantime the coroner for the district had been summoned to Glacier and a searching inquiry resulted in the release of the body for burial.

It will very reasonably be asked: "Was the young man who had charge of the party a competent guide?" I can only say that my son has been my companion in mountain climbing since he was ten years of age. I have frequently been with him in places of considerable difficulty and danger and have always found him cool, clearheaded and capable. I have the fullest confidence in his ability. His party was not roped, but even the Swiss guides at Glacier, who are models of precaution, stated that none would have dreamed of using a rope on the ground where the accident happened.

At the Annual Meeting of the Club, held at the Camp on the Friday, the circumstances were fully related and the following resolutions unanimously passed:

RESOLUTIONS PASSED AT THE ANNUAL MEETING
OF THE ALPINE CLUB OF CANADA.

Held in Rogers Pass, July 10, 1908.

Moved by P. D. McTavish; Seconded by Rev. J. R. Robertson:

That the Alpine Club of Canada, in Annual Meeting assembled, extend to the bereaved family and friends of the late Miss Hatch, who so tragically met her death while climbing Mt. Avalanche, our deepest sympathy in this time of sorrow and bereavement. Although Miss Hatch had been with us but a short time, her quiet manner and her gentle and genial nature had greatly attracted the members of the Club, and her untimely death came as a personal loss to us all. We sincerely trust that the most gracious consolation may sustain the bereaved family and friends.

CARRIED.

Moved by Rev. J. R. Robertson; Seconded by Rev. A. M. Gordon:

That, while we greatly deplore the sad accident which occurred while climbing Mt. Avalanche on July 8th, which resulted in the tragic death of a beloved member, Miss Hatch, we express our conviction that the calamity was not through any fault or negligence of any person in the party. Very especially we express the greatest confidence in the guide, Mr. Oliver Wheeler, one of our experienced guides, who was leading his party most carefully. This was remarked upon by different members of the party, before the accident occurred.

CARRIED.

As soon as the actual facts had been verified, official telegraphic accounts were sent to leading newspapers, both east and west, as it was thought desirable to anticipate sensational reports that might lead to undue alarm among relatives and friends of the members at the camp.

At the meeting it was stated by the Management Committee that while all must feel the greatest sorrow for this most deplorable accident, and the deepest sympathy with the young lady's relatives, it would be neither fair to those who had come and were coming, nor wise, that the programme should be changed in the slightest degree, and it would be carried through as already published; and this was done.

It is but right to state also that as an expression of confidence in the leader, when the accident happened, the members of the party, with the exception of Miss Parslow, whose nerves were naturally much shaken, got together and called upon Oliver to again lead them up the mountain; which he did.

Arthur O. Wheeler,
Chairman Camp Committee.

STATEMENT OF TREASURER.

From May 22nd, 1908, to June 30, 1909.

Receipts.

Balance on hand May 22nd, 1908	\$ 542.18
Fees—Associate members	\$ 351.50
Active members	1,273.35
Graduating members	309.00
Subscribing members	78.25
Life members	200.00
	<hr/>
	2,212.10
Sale of Stationery	10.90
Interest on General Account	18.64
Ice Axes prepaid	85.15
Photographs	9.00
Sale of Journals and Camp Balance	411.29
Camp, 1908	2,380.61
Sale of Club Ribbon	1.00
Alberta Government, Incorporation fee returned.....	100.00
Alberta Government, Grant to 1909 Camp.....	1,000.00
Revelstoke Mountaineering Club to 1909 Camp.....	500.00
	<hr/>
Total	\$7,270.87

Disbursements.

Printing and Stationery	\$ 273.67
Postage, Express, etc.	298.15
Library	74.48
Wages	665.50
Publishing Journal	931.65
Camp Account, 1908	2,380.61
Camp Account, 1909	432.25
Ice Axes, etc.	180.00
Travelling Expenses, Banff and Edmonton.....	30.40
Alberta Government, Fee for Incorporation	100.00
Graduating Fee overpaid, refunded	5.00
American Alpine Guide, Grant to disabled guide.....	25.00
Club Ribbon	21.95
Insurance—Hornibrook & Whittemore	12.00
Balance	1,840.21
	<hr/>
Total	\$7,270.87

Unpaid Fees.

Fees unpaid to date	\$1,022.00
---------------------------	------------

C. W. ROWLEY, Hon. Treas.

RECEIPTS AND EXPENDITURES, ROGERS PASS
CAMP, 1908.

Receipts.

Grant, Alberta Government	\$ 500.00
Board and Accommodation	1,504.00
Sales, Ice Axes and Sundries	194.25
Baggage, Hire of Ponies	41.35
Employees Fund Collected	122.85
Fees—A. B. Ballentine	5.50
	<hr/>
	\$2,367.95

Expenditures.

Provisions	\$ 586.14
Wages	272.95
Outfit, Tents, etc.	377.34
Freight and Express	99.86
Horses	400.00
Stationery, Printing, Telegrams	40.40
Ice, Axes, etc.	184.07
Bonus to Employees	138.00
Smoked Glasses, A. B. Ballentine	5.50
Balance to Canadian Alpine Journal	263.69
	<hr/>
	\$2,367.95

C. W. ROWLEY, Hon. Treas.

BANFF CLUB HOUSE BUILDING FUND.

Synopsis.

Receipts.

Subscriptions Fully paid up	\$3,666.98
Subscriptions Partially paid up	60.15
Proceeds of Lectures by President	88.25
Interest	27.54
	<hr/>
	\$3,842.92

Disbursements.

Sundry Cheques on Club House Building Contracts....	\$3,371.89
Balance in Hand	471.03
	<hr/>
	\$3,842.92

C. W. ROWLEY, Hon. Treas.

BANFF CLUB HOUSE BUILDING FUND.

Subscriptions Paid in Full.

Miss C. E. Adams	\$ 10.00
F. C. Brown	20.00
S. H. Baker	10.00
E. M. Burwash	20.00
A. B. Ballentine	20.00
M. P. Bridgland	30.00
J. R. N. Cooke	20.00
P. A. Carson	50.00
B. S. Comstock	20.00
R. R. Copeland	10.30
P. M. Campbell	20.00
H. N. Cowdry	10.00
E. V. Cowdry	10.00
Dr. Mary Crawford	10.00
Miss E. G. Crawford	10.00
H. S. Craig	40.00
Prof. A. P. Coleman	10.00
Paul D. Cravath	20.00
F. A. Dowler	10.00
Miss M. T. Durham	10.00
Prof. H. B. Dixon	50.00
G. Darling	20.00
A. C. Davy	10.00
L. L. Delafield	50.00
E. L. Drewry	50.00
F. W. Freeborn	61.00
Miss E. J. Freeborn	9.90
Don. Forrester	50.25
J. P. Forde	20.00
F. St. C. Farran	10.00
Rev. Thurlow Fraser	20.00
Miss S. L. Foote	10.00
Miss F. M. Field	10.00
W. W. Foster	20.00
Miss A. Finlayson	10.00
Miss A. J. Garrow	20.00
R. L. Gutsell	20.00
Miss J. A. Gibson	10.00
C. H. Gillis	200.00
T. H. Graham	20.00
Rev. C. W. Gordon, D.D.	30.00
Malcolm Goddard	10.00
Rodney L. Glisan	50.00
G. E. Howard	250.00
Miss E. B. Hobbs	20.00
A. R. Hart	30.00
W. G. Hamilton	20.00
Dr. J. W. A. Hickson	20.25
Miss M. Holditch	10.00
John Halstead	20.00
A. H. Hartevelt	25.00

G. L. Haggren	20.00
Miss A. Hutchinson	10.00
Mrs. Henshaw	10.00
Stanley L. Jones	60.00
Mrs. Jardine	10.00
Walter Bews	20.00
D. N. McTavish	50.00
J. J. Logan	50.25
J. W. Ladler	10.00
S. H. Mitchell	70.13
C. R. Merrill	10.00
C. H. Mitchell	20.00
Miss Amy Morrison	10.00
J. G. Milloy	40.00
J. B. McLaren	20.00
K. D. McClelland	20.00
W. C. McKillican	30.00
H. W. McLean	20.00
Miss J. C. MacKay	10.00
Miss M. A. MacKay	10.00
Miss G. MacFarlane	10.00
Miss M. Macfarlane	10.00
A. M. McCoubrey	20.00
Miss K. McLennan	10.00
F. M. Nicholson	10.00
H. J. Palmer	30.00
Mrs. H. J. Palmer	20.00
Howard Palmer	29.90
Mrs. H. J. Parker	20.00
Miss Jean Parker	20.00
Miss Jean Patterson	20.00
J. D. Patterson	250.00
Prof. H. C. Parker	50.00
R. E. Plewman	20.00
Miss J. M. Port	20.00
Jas. F. Porter	20.00
C. W. Rowley	50.00
Rev. J. R. Robertson	10.00
Rev. T. T. Reikie	10.00
R. H. Rogers	10.00
G. O. Rogers	10.00
K. C. Radford	10.00
K. N. Robins	30.00
J. A. Reid	50.00
C. B. Reilly	20.00
A. J. Sayre	50.00
B. S. Smith	50.00
W. N. Smith	20.00
Miss E. C. Smith	10.00
Miss A. M. Stewart	20.00
Miss M. Springate	10.00
Miss R. G. Stanton	10.00
Miss J. L. Sherman	50.00
B. F. Seaver	10.00
J. N. H. Slee	50.00

Statement of Treasurer.

167

E. L. T. Taylor	50.00
W. H. Thompson	20.00
A. O. Wheeler	250.00
John Watt	50.00
W. J. S. Walker	100.00
F. G. Webber	10.00
H. H. Worsfold	10.00
D. Warner	50.00
Miss H. Watson	20.00
Wm. Whyte	50.00
Total	<u>\$3,666.98</u>

Subscriptions Partially Paid.

C. H. Copeland	\$10.00
C. A. Richardson	2.50
J. H. Alexander	12.50
Miss Creech	5.00
J. C. Huffman	7.50
Rev. C. O. Main	5.00
A. L. Reading	5.00
F. Yeigh	10.15
G. O. Rogers	2.50
Total	<u>\$60.00</u>

Subscriptions Outstanding.

Unpaid	\$255.00
--------------	----------

C. W. ROWLEY, Hon. Treas.

THE SWITZERLAND OF
===== AMERICA =====

Banff

Lake Louise

Field

Glacier

These Famous Resorts for Alpine Climbers
are reached only by the incomparable
trains of the

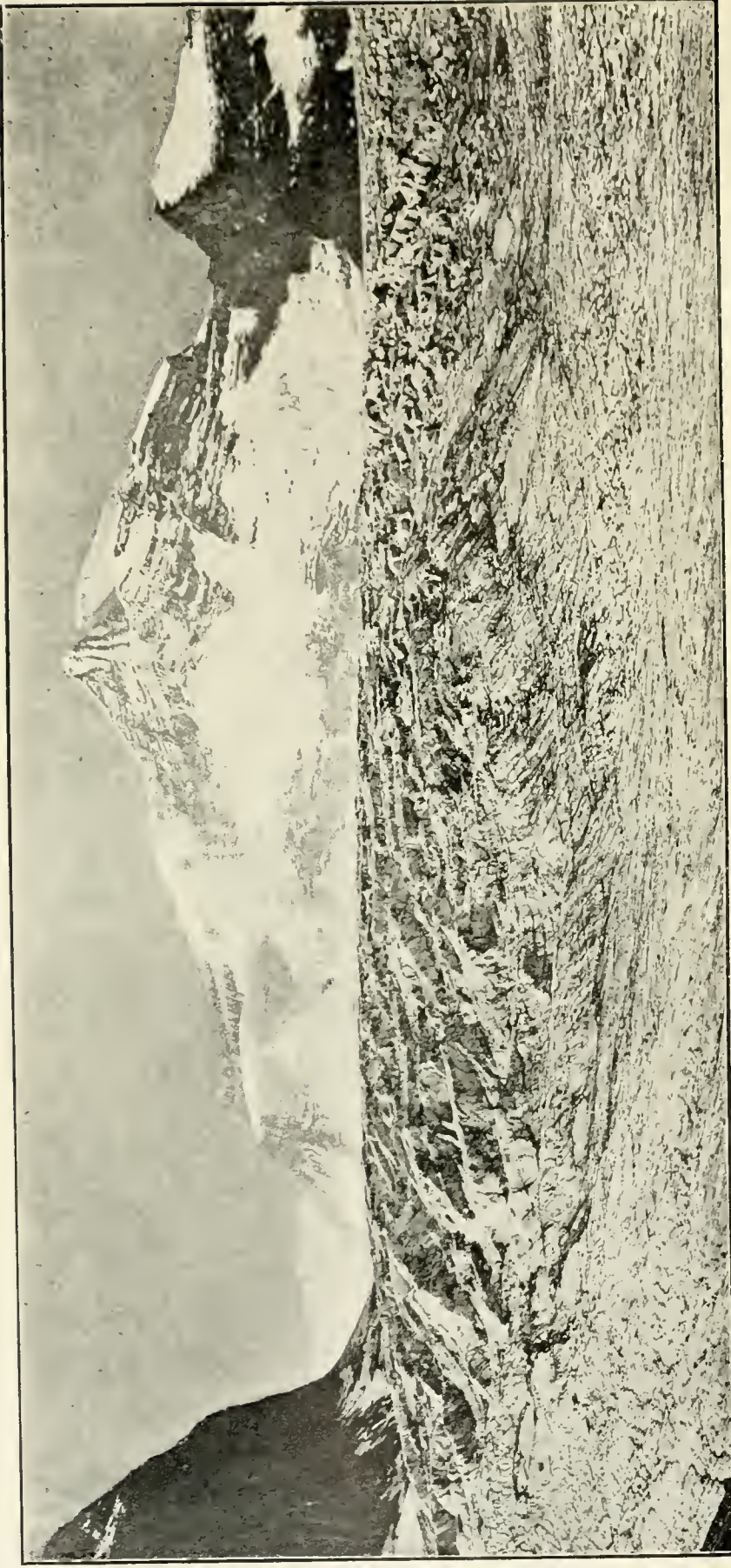
Canadian Pacific Railway

ROBERT KERR, Pass. Traffic Mgr.
Montreal, Quebec.

CANADIAN ALPINE JOURNAL

PUBLISHED BY THE
ALPINE CLUB OF CANADA
1910

Printed by the Stovel Co., Winnipeg, Man.



MT. ROBSON FROM ROBSON GLACIER

A. L. Mumm, Photo

THE ALPINE CLUB OF CANADA

OFFICERS FOR 1908-1910.

Hon. President

SIR SANDFORD FLEMING, K.C.M.G., Ottawa, Ont.

President

A. P. COLEMAN, F.R.S., Toronto, Ont.

Vice-Presidents

JOHN D. PATTERSON, Woodstock, Ont.

M. P. BRIDGLAND, Calgary, Alta.

Hon. Secretary

MRS. J. W. HENSHAW, Vancouver, B. C.

Hon. Treasurer

C. W. ROWLEY, Calgary, Alta.

Director

A. O. WHEELER, A.C., F.R.G.S., Banff, Alta.

ERRATA.

page 48, sixth line from bottom : "successfully" should read
"unsuccessfully."

Illustration facing page 50 should face page 74.

Illustration facing page 159 should face page 139.

W. A. ALLDRITT, 246 Beverly St., Secretary

Calgary

S. L. JONES, Chairman

A. B. BALLENTINE, Box 1127, Secretary

Vancouver

A. L. KENDALL, M.D., Chairman

C. H. GILLIS, Box 490, Secretary

New York

F. W. FREEBORN, 306 Halsey St., Brooklyn, Secretary

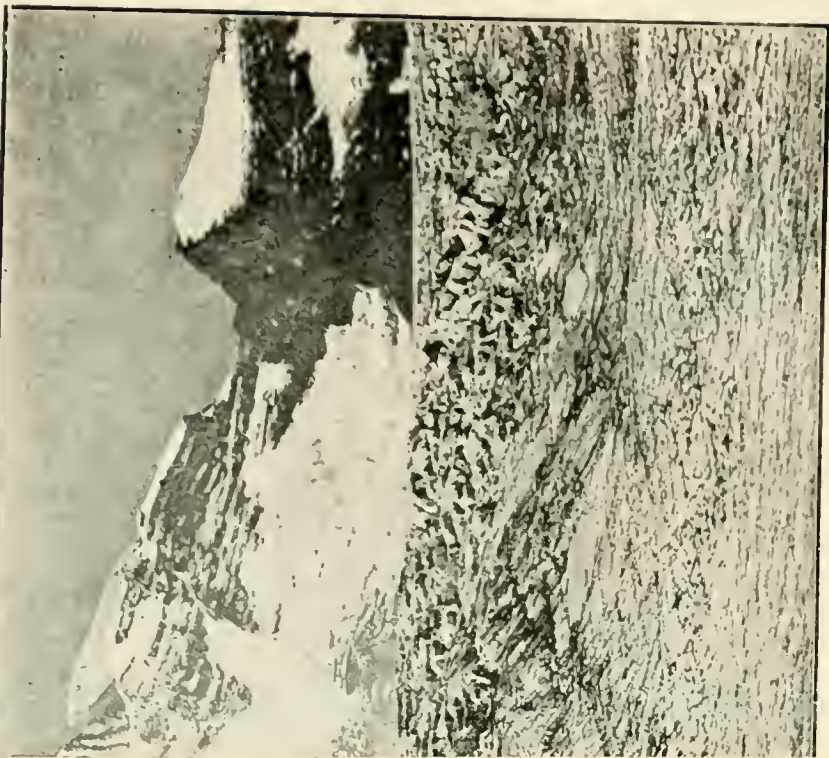
London, England

PROFESSOR NORMAN COLLIE, F.R.S., Chairman

A. L. MUMM, 4 Hyde Park St., London, Secretary



A. L. Mumm, Photo



ACIER

THE ALPINE CLUB OF CANADA

OFFICERS FOR 1908-1910.

Hon. President

SIR SANDFORD FLEMING, K.C.M.G., Ottawa, Ont.

President

A. P. COLEMAN, F.R.S., Toronto, Ont.

Vice-Presidents

JOHN D. PATTERSON, Woodstock, Ont.

M. P. BRIDGLAND, Calgary, Alta.

Hon. Secretary

MRS. J. W. HENSHAW, Vancouver, B. C.

Hon. Treasurer

C. W. ROWLEY, Calgary, Alta.

Director

A. O. WHEELER, A.C., F.R.G.S., Banff, Alta.

Secretary Treasurer

S. H. MITCHELL, Banff, Alta.

Advisers

F. YEIGH, Toronto, Ont.

S. L. JONES, Calgary, Alta.

REV. G. B. KINNEY, Keremeos, B. C.

Local Committees

Toronto

PROFESSOR A. P. COLEMAN, F.R.S., Chairman

C. B. SISSONS, Victoria College, Secretary

Winnipeg

J. B. McLAREN, Chairman

W. A. ALLDRITT, 246 Beverly St., Secretary

Calgary

S. L. JONES, Chairman

A. B. BALLENTINE, Box 1127, Secretary

Vancouver

A. L. KENDALL, M.D., Chairman

C. H. GILLIS, Box 490, Secretary

New York

F. W. FREEBORN, 306 Halsey St., Brooklyn, Secretary

London, England

PROFESSOR NORMAN COLLIE, F.R.S., Chairman

A. L. MUMM, 4 Hyde Park St., London, Secretary

CANADIAN ALPINE JOURNAL

The Publishing Committee is not responsible for statements made by contributors to the Canadian Alpine Journal.

CONTENTS VOLUME II. NO. 2

MOUNTAINEERING SECTION

An Expedition to Mt. Robson. By A. L. Mumm.....	1
To The Top of Mount Robson. By G. B. Kinney and Donald Phillips	21
The Ascent of Pinnacle Mountain and Second Ascent of Mount Daltaform	45
First Ascent of the N. Tower of Mt. Goodsir. By J. P. Forde	61
Further Beyond the Asulkan Pass. By E. W. D. Holway....	70
Ascents in the Canadian Rockies. By Val. A. Fynn	77
On Mt. Hood. By Frank W. Freeborn	88
The First Traverse of Mt Victoria. By G. W. Culver	92
Over the Wilson and Duchesnay Passes. By Mrs. A. H. MacCarthy	95
Second Ascent of Mt. Biddle. First Ascent Mt. Victoria By South Route. By J. P. Forde	99
A Short Trip In The Selkirks. By R. R. Copeland.....	103

SCIENTIFIC SECTION

Geology and Glacial Features of Mt. Robson. By A. P. Coleman	108
An Adventure With An Eruption of Mt. Pelee. By Tempest Anderson	114
Motion of The Yoho Glacier. By Arthur O. Wheeler.....	121
Observations On Glaciers in 1909. By George Vaux, Jr.....	126

Botanical Notes

The Arbutus (<i>Arbutus Menziesii</i>). By Juliar W. Henshaw....	131
--------------------------------------------------------------------	-----

MISCELLANEOUS SECTION

A Fortnight With The Canadian Alpine Club. By Godfrey A. Solly	134
Two Englishmen in the Yoho Valley. By E. F. M. MacCarthy and A. M. Bartleet	143
A Graduating Climb. By Ethel Johns	158
An Afternoon Stroll In The Selkirks. By H. B. Dixon.....	165
With The Scottish Mountaineering Club at Easter. By G. M. Smith	172
Mathew Arnold's Alpine Poetry.....	178

In Memoriam

Hector G. Wheeler, Biographical Sketch	183
Rev. J. C. Herdman, D.D., Biographical Sketch	185

Alpine Club Notes

On Equipment. By Val. A. Fynn	187
Hints On The Use of The Rope In Mountain Climbing. By J. P. Forde	191
First Ascent and Traverse of The True Mt. Schaffer. By Malcolm Goddard	196
The Altitude of Mount Huascaran. By Fanny Bullock Workman	197
Winter Mountaineering at The Coast. By B. S. Darling.....	198
Revelstoke Mountaineering Club	199
Crowsnest Pass	199

Reviews

Five Months in The Himalaya; My Climbs in The Alps and Caucasus. By E. P. (Two notable Alpine books.)	200
----------------------------------------------------------------------------------------------------------------	-----

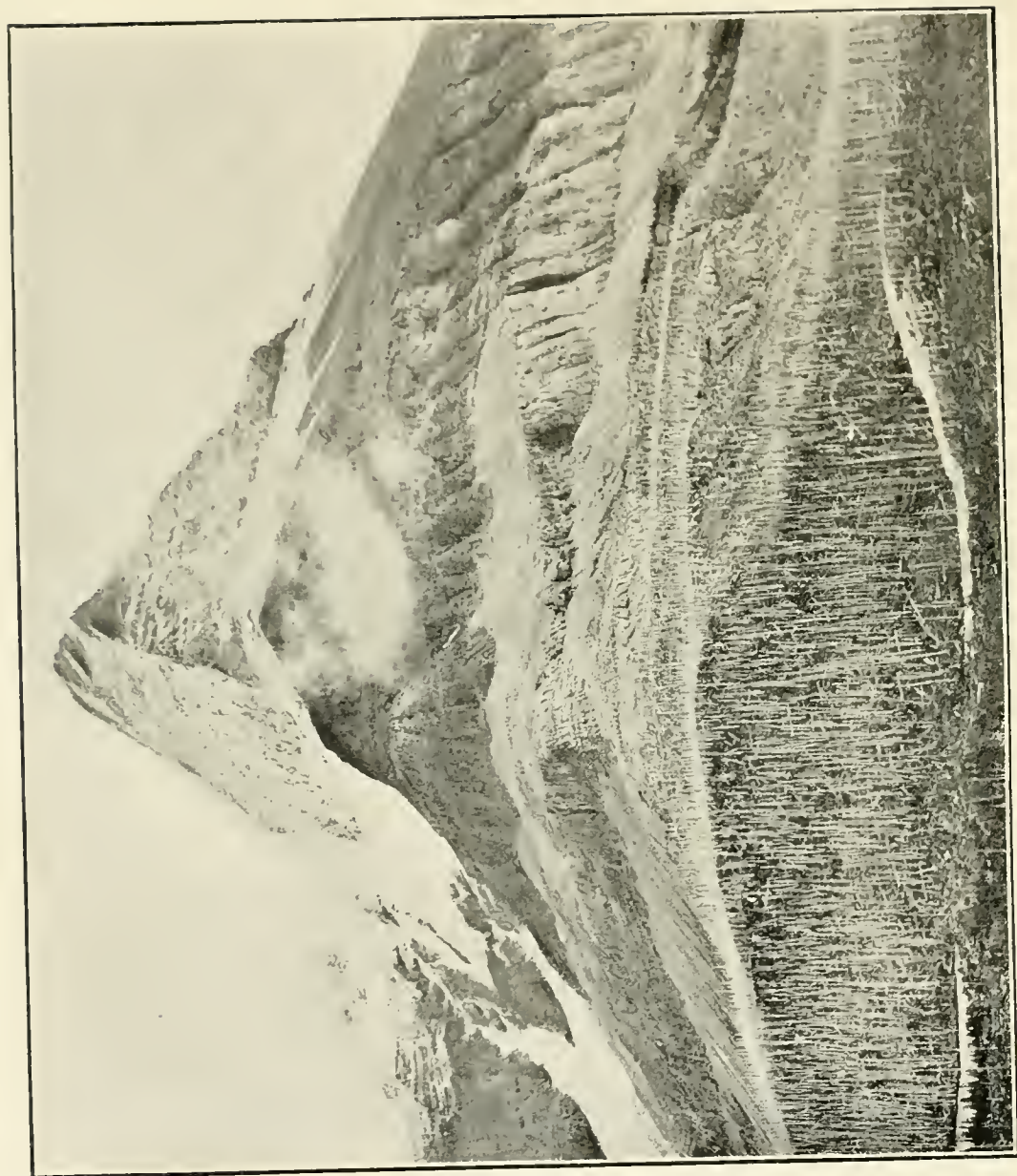
OFFICIAL SECTION

Report of the Hon. Secretary.....	205
Report of Librarian	209
Report of 1909 Camp	211
Alpine Club Camp Song. By L. S. Amery	216
Report of Mountaineering	217
Statement of Treasurer	225

Copies of the Canadian Alpine Journal can be obtained from the Secretary Treasurer, S. H. Mitchell, Banff, Alberta, at the following rates: Vol. I. No. 1, \$1.50; Vol. I. No. 2, \$1.25; Vol. II. No. 1, \$1.00; Vol. II. No. 2, \$1.00.

All applications for copies must be accompanied by money order or postal note payable at par in Canada. Cheques not accepted.

By furnishing the address you can have copies sent to friends.



A. L. Mumm. Photo

NORTH-WESTERN FACE OF MT. ROBSON
From Upper Plateau of the Grand Forks

CANADIAN ALPINE JOURNAL

PUBLISHED BY
Vol. II. THE ALPINE CLUB OF CANADA No. 2

MOUNTAINEERING SECTION.

AN EXPEDITION TO MOUNT ROBSON.

BY A. L. MUMM.

Fortunately for me, I am under no necessity to commence this paper with a disquisition on the whereabouts of Mount Robson, or the attempts made to reach its summit prior to 1909; neither need I say anything of the circumstances under which the members of the expedition which I am about to describe found themselves last summer in the Camp at Lake O'Hara. Readers of this journal are already familiar with these matters and I can, therefore, plunge at once *in medias res* with the statement that on Friday, August 6th, Messrs. L. S. Amery, G. Hastings and I left the camp for Lake Louise and Laggan via Abbot's Pass, while Moritz Inderbinen, a Zermatt guide, and my friend and com-

panion in the Alps and elsewhere for more than twenty years, went round by Hector to see after the luggage.

Amery had already been to Edmonton, in order to inquire as to the journey thence to Mount Robson, and, if it seemed possible to get there within a reasonable time, to make the necessary preparations for the expedition. The time at his disposal was ridiculously short, and it reflects great credit on his energy and foresight that his arrangements worked out entirely satisfactorily. The inconveniences due to the unavoidable hurry were too trifling to be worth mentioning. Even he, however, could have scarcely got things in train for a start on August 8th if it had not been for the assistance of Mr. M. H. Evans, of Edmonton, for whose kindness we cannot be sufficiently grateful.

My own expectations with regard to Mount Robson had not been pitched very high and when Amery appeared at the Lake O'Hara Camp on Thursday morning, I had fully expected to hear that it was far too late to try for it, and that he had abandoned the idea. If I had known my Amery then as well as I do now, I should have realized that no obstacles deter him when he is once on the war path. No doubts or hesitations coloured his reports. I even think, in the first flush of optimism, he went so far as to say that we might, if all went well, reach Mount Robson in fourteen or fifteen days from Edmonton, and turned a deaf ear when Mr. Wheeler shook a sagacious head and murmured something about six weeks.

Our adventures began at once; we missed the afternoon train at Laggan, reached Calgary at 2 a.m. on Saturday, and wandered about in the small hours—a most suspicious looking band, equipped with ruck sacks, ice-axes and full mountaineering kit—hunting for the Braemar Lodge Hotel, into which we effected a semi-burglarious entrance soon after three o'clock. However,

we managed to get on that night to Edmonton where we found Mr. A. G. Priestly, a friend of Hastings, who was coming with us in the hope of getting some shooting in British Columbia; and on Sunday morning at 10 the party started in two buggies and two democrats for Wolf Creek.

I could write pages about that drive, the most remarkable in some respects of all our Canadian experiences. At one time I felt as though the rest of our lives would be spent in struggling through the Lobstick woods, and heartily wished that I was in the Yoho Valley with Mr. Wheeler and the rest of our party; however, Wolf Creek was reached at last, after the longest week I have ever known. We had expected to get there in three, or, at most, four days, and it was borne in upon us that it would be wise to multiply most of our original time estimates by two or two and a half; but once fairly started on the trail, we soon left off worrying about dates and such like matters and began really to enjoy ourselves.

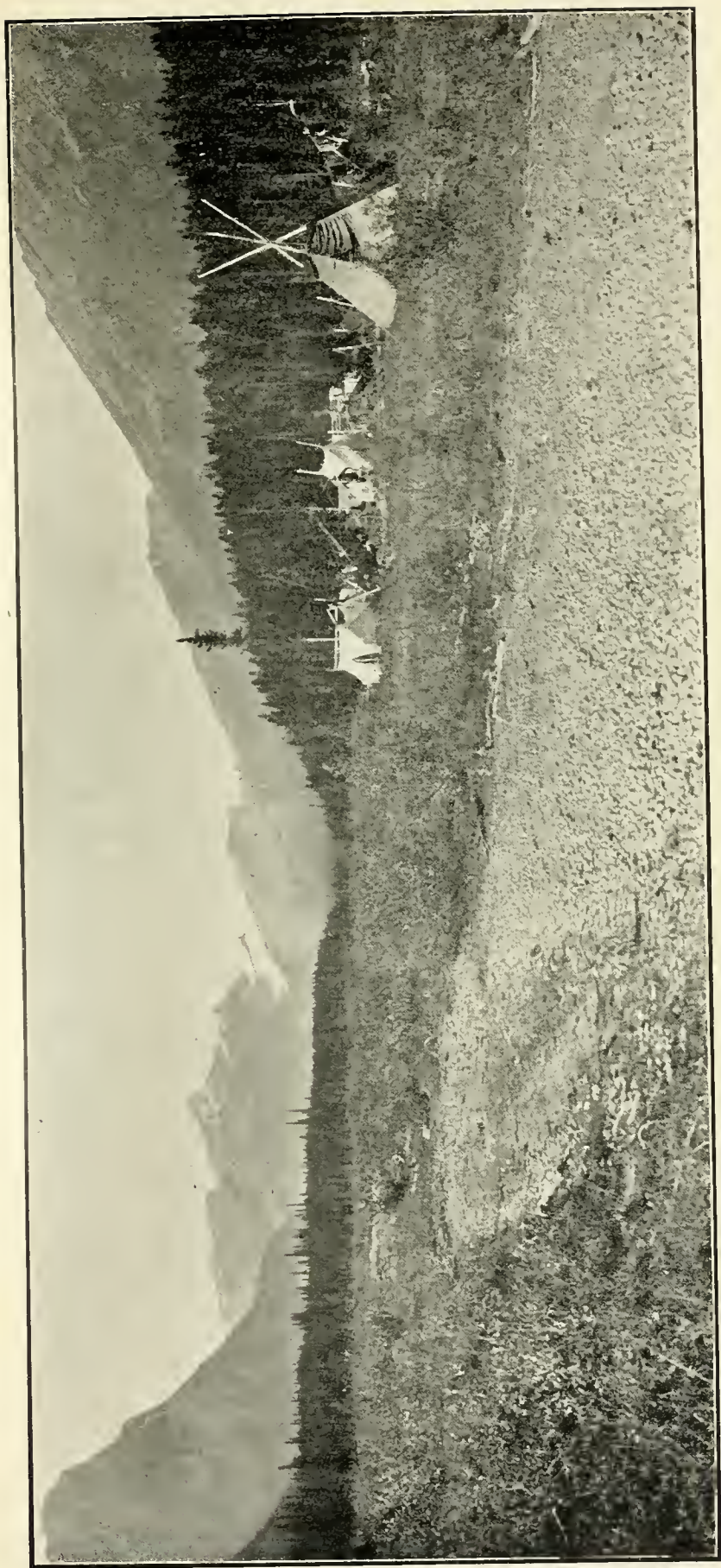
Mr. John Yates, of Lac Ste. Anne, was waiting for us on the Athabaska (this is one of the many things for which we have to thank Mr. Evans), and I need hardly say that we could not possibly have been in better hands. In the rest of our journey over the Yellowhead Pass there are only two things that call for mention. The first of these was the news of Mr. Kinney's ascent of Mount Robson which met us at the ferry above Jasper Lake on August 23rd. Next day Amery and Hastings had the pleasure of meeting Mr. Kinney himself and offering him their congratulations on his gallant achievement. Surely no mountaineering success was ever more richly deserved, or won by a finer exhibition of courage, skill and indomitable perseverance. The other notable incident was our first view of the summit of Mount Robson which came in sight a few miles above the junction

of the Moose and Fraser Rivers on August 29th. This is worth recording, inasmuch as it has hitherto been accepted as a fact that Mount Robson is not visible along this route until the now well-known view is obtained at the opening of the Grand Forks Valley.

We camped that night on the bank of the Moose River, a short distance from the actual junction with the Fraser, and Yates made a spirited attempt to elucidate the topography of the Robson massif by means of a map which he drew on the back of a plate after dinner. The feature which principally arrested our attention was an extensive snow plateau above the head of the west fork of the Moose River, which according to the reports of Indian hunters was twenty miles across, and which, it seemed, might afford a possible route to the base of Mount Robson.

On August 30th we ascended the Moose Valley and camped high up on the left bank of the western branch of the river. A proposal was carried by acclamation that the 31st should be an off-day; it was the second since leaving Edmonton, and was so thoroughly appreciated that I do not think anyone went more than one hundred yards from the camp. Not very much could be seen of our surroundings; by far the most prominent object in the view was a fine glacier at the head of the valley which strongly drew our attention. It was pretty steep and much crevassed in places, but there appeared to be a practicable route up it, and for a party wearing crampons, a fairly rapid one, to the sky line, beyond which lay the great snow plateau already referred to.

All of us felt we ought to have a look at the plateau and Mount Robson without delay, and that the ascent of the glacier would be a very sporting way of accomplishing that object; and Yates proposed that we should go up the valley as far as possible that afternoon with ponies and a light tent, but the latter suggestion was



A. L. Mumm, Photo

CAMP ON WEST FORK OF MOOSE RIVER

vetoed by Hastings, who holds very pronounced views as to the desirability of starting from the main camp whenever practicable. Accordingly we went early to bed, the alarm being set for 11.45; we got off at 12.45 a.m. on September 1st, and a few minutes later were in the forest.

For about two hours all went well and smoothly; the moon shone brightly and there was not much undergrowth. Hastings' lantern appeared to be a veritable magic lantern, beneath whose beams ways opened up unexpectedly in the most unpromising places, and I was mentally composing a panegyric on his sagacity and unerring instinct for direction when "Hello!" he shouted, "What's the moon doing over there?" We had curved round nearly in a half-circle and were heading almost straight down the valley. Very little ground had been lost, but from that moment the going became continuously worse and worse; wind-falls beset us unceasingly, and progress was extremely slow. Finally we emerged from the woods at about 5 o'clock, and after expending some time and a vast amount of energy in trying to bridge the river with a tree trunk, continued our way up the left bank, scrambled through a narrow rocky ravine out of which it rushed with great violence, and arrived in a stony flat where we were able to cross fairly easily.

We made a fire and breakfasted in very leisurely fashion not much troubled by the fact that the distance from camp as the crow flies was deplorably short. It was a most interesting place: the glacier was visible from top to bottom straight ahead of us, and on our left opened the mouth of a deep valley, most of which was hidden behind a great rocky spur that descends from the main ridge to the spot where we were sitting. I was, and am still, intensely curious as to what that valley is like, and whether it is possible to ascend to the head of it. If this can be done one could certainly get down without serious difficulty on the other side, and this

would make the most direct, and in other respects a very attractive way of reaching the Robson Glacier. If I am ever in the Moose Valley again—but we had no leisure for reflections of that kind, nor did we at that time know what the other side was like. We started again at 7.15, reached the glacier—which was farther off than it looked, after the manner of glaciers—in an hour, and put on our crampons.

I have worn crampons so seldom that tramping securely up a steepish slope of hard ice still gives me a sensation of pleased surprise. We had an enjoyable spell of it, but presently the crevasses became very large and labyrinthine, and the passages between them grew more and more broken and razor-like. A feeling of *amour propre* impelled us to spend some time in a fruitless effort to force a way through, but eventually we were obliged to take to the rocks and moraine on the left bank for a short distance. After that it was easy to cross the glacier above the big crevasses to its right hand side, where snow slopes led upwards till the much talked of plateau, or a section of it, spread out before us, falling away gently to the north.

A precipitous rocky wall, a continuation of the spur mentioned on page 5, encloses the plateau on the west and blocked us completely in the direction of Mount Robson, but a gap about a couple of miles ahead seemed to hold out a chance of a view. Some distance away to the right the horizon was bounded by another much lower ridge or rocks, only rising slightly above the snow. Amery and Inderbinen volunteered to go on to the gap and at 1.30 p.m. we separated for a time. They obtained an excellent view of Mount Robson across the Robson Glacier which lay immediately below them. It could be reached from the gap without the slightest difficulty, so that there is at any rate one direct mountaineers' pass from the Moose Valley to that of the Smoky

River. Some day when the era of the Club huts arrives, and routes and times are more accurately known, it is quite likely that energetic climbers will ascend Mount Robson, making the Moose Valley their starting-point, but for our purposes it was clear that the distance was altogether too great.

In the meantime Hastings and I went to the ridge on the right. Though it is only a break in the plateau, which extends many miles beyond it, it is sufficiently elevated to be a remarkably fine view-point. We plodded through the snow, which was growing softish, for an hour and a quarter, and Hastings' reason for visiting it—that he was tired and wanted some rocks to lie down on—seemed to me singularly inadequate. That, however, is by the way. The day was an absolutely perfect one, and we had the rare treat of enjoying an entirely novel view of great beauty and variety, under conditions absolutely favourable. The summit of Mount Robson rose grandly above the rock-wall, and a veritable sea of unknown and unnamed mountains spread around us in all directions. I managed to photograph somewhat less than half the panorama; most unluckily, I had not my full complement of plates with me that day. We rejoined our companions, who had waited for us for some time on the snow with exemplary patience, soon after half past four.

The question when and how we were going to get back had been exercising my mind for some time, and now the others began to develop a tardy interest in it also. I think it was Hastings who suggested that we should go right round the head of the valley eastward, follow the hillside above the timber line till we were above the camp, and then drop straight down to it through the forest. This was a really brilliant conception and showed a remarkable grasp of the topographical conditions. The head of the valley is far wider than ap-

pears from the camp, and two other glaciers, about the same size as the one which had served as a half way in the morning, descend into it from the plateau. We tried to get down to the central one, but were pulled up short by a tremendous precipice and had to retrace our steps for a considerable distance. (Just at this point there were numerous caribou tracks on the snow.) An attempt at a short cut to the farthest glacier was also a failure, and it was finally reached after a circuit at a very high level round the whole of the head of the valley. Fortunately the going was excellent; we raced down it, got off the ice at 7.30, and hurried over some steep, rough ground during the last hour of daylight, arriving at the edge of the forest at 8.30.

And here the strictly alpine interest of this expedition comes to an end, but I cannot resist dwelling at some length on the remainder of it, for it is that which gives it a place apart among all my mountaineering experiences. It was now about nine hours since we had had a square meal; the place was pleasantly sheltered, with fuel and water at hand; so a fire was lighted, and we prepared to consume, luxuriously and leisurely, the rest of our provisions. As the moon could be relied upon for hours and it was not very material whether we got back to camp at 1 or 2 a.m., we reposed till 11, and then started upwards through the forest, looking forward cheerfully to an easy walk of a couple of hours or so, and, incidentally, to a magnificent moonlight view of Mount Robson. But a Canadian forest is not so easily circumvented. We had not been going long when the trees ended abruptly, and we found ourselves looking across a gap, which descended very nearly to the valley floor. It was perhaps eighty to a hundred yards broad at this point—but it is difficult to give more than a very vague estimate—and was entirely filled by an immense smooth slab of gray rock, stretching upwards for many

hundreds, perhaps thousands of feet, and without a sign of a break in its slippery cast-iron surface. I should not like to assert that to get across it would have been absolutely impossible, but it was anything but a tempting route, especially in that light, and after a futile explosion of disgust, we proceeded, with somewhat ruffled feelings, to go down. A crack saved us from going the whole way to the bottom, and once more we started hopefully upwards.

Not many minutes had gone by when the trees appeared to be getting ominously thinner again. Could it be another slab? The thought was too horrible. But another slab it was, as hard and smooth and forbidding as the first one. This time we fairly owned ourselves beaten; it was no use contending with a forest that could produce obstacles of this kind, and there might be more to come, for aught we knew. So, too subdued in spirit to use bad language we went down, right down to the bottom this time, and swallowed the unpalatable fact that the morning's performance would have to be gone through again, only at considerably greater length.

While we were descending the second gap there came, as if in mockery, a really wonderful glimpse of Mount Robson, gleaming silvery in the moonshine; and that as far as I was concerned, and I think I may say the same for the others, was the last occasion on which we took the slightest notice of anything but what was immediately in front of us. That was what made the whole thing such a nightmare, the absolute compulsion to attend, ceaselessly, unremittingly to what one was doing and where one was putting one's feet. Mere walking would have been, relatively, delightful, but walking there was practically none, only clambering, crawling, balancing, dodging, through the unending complexities of almost continuous windfalls. Once a tremendous roar ahead of us announced that we were

coming to a torrent, one that we must have passed in the morning on the level, and forgotten. Great trees made the passage easy, and we rested thankfully for a few moments on the far bank, and drank some of the ice-cold water. Then on again, and a yet louder roar told us that we were on an island with the larger branch of the stream still in front of us. A single tree trunk bridged it. I saw Hastings and Amery pause and speak for a moment, then walk over with apparent unconcern. Inderbinen followed; in ordinary circumstances he would have been looking round the instant he reached the other side, to make sure that all was well with me and to offer me the end of his ice axe; but now he walked stolidly on without a single glance behind him. I looked at the bridge and the raging flood below and—crawled over on my hands and knees. “Will you walk over if I do?”—“All right.” This, I learned later was the conversation which had taken place between Hastings and Amery. I can recall no other incident, scarcely another remark, save when at intervals Amery or I called for a halt because one of our puttees was coming undone. Once, when we had reached the more open forest, I suddenly saw four ponies. They were in a most improbable place, and I knew they could not be our ponies because one of them was a bright strawberry color quite unlike any of ours, or I should think any cayuse that ever lived, but I accepted them without surprise, as one accepts strange things in dreams, and watched them for what appeared to be quite a long time before they resolved themselves into bushes and scrub.

But all things come to an end at last, and towards 6 o'clock there appeared, first, some ponies that were indubitably real ones, and then, the tents. We were really back again after an absence of just over 29 hours, a record for me, and I sincerely hope it will remain so, but Hastings beats it easily with an outing of 35 hours on Nanga Parbat.

A dozen times during that unspeakable night I had made unalterable resolutions that nothing should induce me to move another step in the direction of Mount Robson, but they melted away as such resolutions will, and at tea that afternoon it was decided *nem. con.* to proceed thither at once. We started for the east fork of the Moose River next morning and at 3 o'clock on September 5th, Yates brought us to the camping-place of the Robson Glacier where he had established Messrs. Kinney and A. P. and L. Q. Coleman almost exactly twelve months before. It was twenty-nine days since we left Edmonton, and on twenty-five of them we had been on the march.

On this last day, as there was only a short distance to be covered, Yates took us over a spur overlooking the Smoky River Valley at a point considerably higher than it was actually necessary to go, in order that we might enjoy to the full the view of the whole mass of Mount Robson. A superb view it was, and we inconspicuously resolved to make an attempt on that side of the mountain without delay, being urged thereto by the weightiest of all possible reasons, namely, that Mr. Kinney had been up the other one.

Mount Robson on this eastern side presents a most uncompromising front. If we could once get to the top of that long wall running from the summit southward, though to follow the crest to the highest point might perhaps not be perfectly easy throughout, we could see nothing to suggest obstacles that were likely to prove insurmountable. But the scaling of the wall itself—that unquestionably would be by far the most difficult portion of the route, and any estimate worth having of the chances of succeeding there could only be obtained on closer inspection. From the spot where we were standing one could see a beautiful snowy col at the head of the Robson Glacier, and our first idea, hastily formed

and subject of course to revision, was that the best way to get at the wall would be to ascend to the col, and from there to go along what appeared to be a continuous snow terrace running towards and along the base. At that time we had not seen any account of the attempts made on this side by the 1908 party, and I do not think that we had realized that Yates had taken part in them.

On the following morning we walked up the glacier as far as a conspicuous mass of rock named by our predecessors "the Extinguisher," and carefully examined the proposed route. We now learned for the first time from Yates, who came with us, that he, Mr. Kinney and the brothers Coleman had effected a direct passage to the base of the wall through a tumbled mass of snow and glacier which intervenes between it and the floor of the main glacier and is held up by a snow capped buttress to which he gave the name of "the Helmet." This was clearly a much shorter way than ours, and we resolved to try it. Some of the next day's provisions were deposited under a stone and we returned, well satisfied with our reconnaissance. Inderbinen was extraordinarily sanguine, and went so far as to express the opinion that we should reach the top in nine hours.

That afternoon we had a little surprise. I must retrace my steps here for a moment to explain that Amery, not content with organizing our own expedition at lightning speed, had also been making arrangements for his brother (who, when we arrived at Quebec, was just starting on his way home on leave from the Sudan), to follow on after us as quickly as possible. With this object in view he had been keeping up a dropping fire of letters and telegrams in all directions ever since his arrival in Canada. His plans, in this as in all other respects, worked out with machine-like precision, and about 2 o'clock, two or three days before we had begun to look out for them, Captain Amery and his outfit ar-

rived. With a single halt of forty-eight hours in London, he had travelled straight through from Khartum.

On September 7th Amery, Hastings, Inderbinen and I started at 1.15 a.m., and in twenty minutes we had got our crampons on and taken to the ice. I could scarcely believe that after all these weeks we were actually starting for Mount Robson. Would we really get up, I wondered; I had not fully realized till then how intensely eager I was to do so. The night was starry and for some time remained clear; the only disturbing element in the situation was that it was preposterously warm—always an ominous sign. However, one could but hope that the wonderful weather we had been enjoying would hold out for twenty-four hours more. There was considerable difficulty in finding the cache of provisions. In the day time it had seemed as if we could not possibly miss it, but the look of everything was completely transformed by moonlight, and we did not hit off the place till past 4. After a halt and a second breakfast, we went up a sort of huge step in the main glacier, and in a little over an hour came to the point where the real ascent begins. Here Hastings announced that he could not keep his eyes open any longer and positively must have half an hour's sleep. There were no rocks for him to lie down on here, but he seemed to manage very well on the ice, and presently rose like a giant refreshed. We roped, Inderbinen leading, and set off again at 6.30. And now the evil effects of the abnormal warmth made themselves felt. Twenty-four hours earlier when we were starting up the glacier, the air had still been cold, and the surface of the ice as hard as iron, but now a warm wind, like the Föhn, was blowing, and the snow was in the worst condition possible, crusted on the top and just not firm enough to bear. Going was slow, and very laborious, Inderbinen especially having an immense amount of hard work to do in making the steps. I have

kept no record of how long this continued, but it must have cost us a great deal of extra time, and at the earliest possible moment we swerved off to the left and took to the rocky side of the Helmet. This was much pleasanter than the snow, but the slope was very steep and a certain amount of zigzagging was necessary. It was 10 o'clock when we reached the topmost ledge of rock, and halted for another meal; at half past we walked over the dome-shaped top of the Helmet into the snowy trough which lies between it and the great eastern wall.

This, if I have rightly understood Mr. Kinney's description was the farthest point reached in 1908. His party went as far as the edge of the bergschrund which runs along the base of the wall but did not cross it. I think they intended to ascend entirely by the snow, a short distance to the right (as one faces the wall) of where the rocks cease to appear. This had also been our intention at first, but after a short inspection at closer quarters, a slight change of plan was decided upon. From a distance the rocks look like belts running horizontally along the face of the wall, alternating with bands of snow, but we could now make out a fairly well defined rib, descending to within perhaps two or three hundred feet of the bergschrund with a slight downward trend from right to left, which seemed to provide a route with a decidedly easier gradient, to within a short distance of the sky-line.

I think it was then about 11 o'clock. There was no bridge over the bergschrund, but it was not very broad, and Inderbinen managed to cut himself a precarious foothold on the far side, and there laboriously hewed and hacked away a space sufficient to enable him to clamber out on the snow slope above its upper lip. It was a difficult task, cleverly performed. The rest of us followed comparatively quickly. The snow here was in fairly good order; it was one of those very steep slopes

where one's main preoccupation is the question: what will it be like coming down?—and the steps are made very large and treated with tender consideration. When we arrived at the rocks there was a comfortable feeling in the air that things were going well, but it did not survive very long. Progress was slower than had been anticipated. We kept to the rib where we could, but spent most of our time in the gully; for the rib bounded a gully or chimney, inconspicuous from below but continuous and well marked when one got close to it. Inside the gully the rocks were loose and rotten, and a succession of troublesome places occurred, in which one used one's knees a great deal and never got a really good hand-hold. And the melting snow made it slippery, sippy work. Those who frequent the English Lakes at Christmas or a snowy Easter know the kind of thing I am trying to describe, but they do not get it in such large doses.

We gained ground steadily though slowly, and at length found ourselves on a band of snow, or rather ice with a thin covering of snow over it, above which was another belt of rock, the last one, and then another band of snow of which the sky-line was the upper boundary. Looking up and down for a moment while Inderbinen was step-cutting, I was tremendously impressed by the continuous steepness of the climb. The slope on which we were standing was perhaps the steepest, and in Inderbinen's opinion it was the nastiest bit that we had yet encountered, and the rocky belt above appeared literally to overhang, like the eaves of a roof. However, it was not very far off, and a little to our left a narrow neck in the line of rocks seemed to promise access to the final snow slope.

We had pulled up for a minute or two to discuss this matter when a breeze blew down the slope and struck me chill. I was soaking wet, and for some time the sun,

though still high, had been completely hidden from us behind Mount Robson. Moreover, the sky was no longer clear, and it suddenly struck me as highly probable that we should get no more sunshine that day—a depressing thought, which prompted me, for the first time since we had started on the ascent of the face, to look at my watch. It was nearly 2 o'clock. An hour more to the crest (Inderbinen had just volunteered this estimate) and then some little halt for food was really imperative. And then—well, yesterday we had reckoned that after reaching the crest we could follow it to the summit in two hours, but somehow our guesses at times had not so far proved very reliable, and even if this one did not turn out to be immoderately sanguine, it would be 5.30 at least before we reached the top. Once this train of calculation was started, it became alarmingly obvious that there was not the faintest chance of our getting back to the bottom of the wall before dark, and that meant spending the night either on the ridge itself or somewhere on the face of the wall, not far below where we were now standing. I confess I was appalled by the prospect, and lost no time in announcing, apologetically but firmly, that nothing would induce me to face either alternative.

Amery's gentle accents floated up to me from below:—"You only want a rest, Mumm, we'll be on the ridge in half an hour and we can stop a bit and have something to eat and you'll be all right." This remark was meant to be soothing, and like most remarks made with that amiable object, it produced exactly the opposite effect to the one intended. I replied rather tartly that as far as grind was concerned, I was quite ready to go on for another six hours, but spend the night on the ridge or on the face I *would* NOT! It was a bitter moment for Amery; "Well, at any rate," he pleaded, "let us go on to the sky line; we must have another try, and



A. L. Mumm, Photo

CAMP AT SWIFTS



A. L. Mumm, Photo

CAMP AT PRAIRIE CREEK



A. L. Mumm, Photo

ALPINE CLUB PARTY
Camp at Foot of Robson Glacier

it will be useful to know what it's like on the top." But Hastings too had been making calculations, and pointed out that if we abandoned the attempt to reach the summit, it was certainly not worth while spending a night out for any lesser object, and there was no margin of time left to play with if we meant to get back to the main Robson Glacier before dark. So rather gloomily we turned to the right about, and without shifting our places began the descent, Amery leading.

We had scarcely started when a tremendous bang and crash made everyone stop and look round hastily over his right shoulder. A number of blocks of ice, some of them the size of a man's head were just shooting through the narrow neck in the rock belt which had been selected as the best line of ascent, and an instant later came hurtling down the snow into the gully. Before anyone had moved or spoken another crash above heralded a second discharge. This one consisted of a mixture of ice and rocks and followed the same course as the other. They passed within a few feet of us, but nothing came our way. Very little was said, indeed there was little to say. "We should all have been kilt," Inderbinen observed thoughtfully, a few minutes later (he meant, if we had gone on in the direction originally intended), and that practically exhausted the subject. We went down as fast as we could, which was not very fast, only stopping once on a ledge well out on the rib for a short and very welcome rest during which we finished the small store of provisions, that had been brought thus far. I could not help looking back occasionally at an icy tusk which rose, disagreeably conspicuous, against the sky. Its twin must have furnished the materials for the avalanche. But nothing more came down and we were safely over the bergschrund by 5 o'clock. It was the mild night and that abominable warm wind in the morning that caused the mischief; I believe it would have been

perfectly safe the day before, but I must admit that we had no business to be in that place on that afternoon.

We had resolved while descending to make the return journey by way of the snowy pass at the head of the Robson Glacier—the route which had been provisionally chosen two days before—instead of repeating the long climb over the Helmet, so we now walked down the snowy trough, past the Helmet and past the end of the eastern wall, which terminates in a tremendous almost vertical precipice several hundred feet in height. Here the floor of the trough took a rapid downward slope and disappeared from view, clearly in the form of a pretty steep glacier, too steep to try without previous examination at that hour of the afternoon. On our right between the great precipice and the col were a succession of towers or teeth forty to fifty feet high, covered with snow on the side nearest us, steep and rocky on the other. Amery and Hastings got over to the far side of the first one, and announced that all was well so far as they could see.

The surrounding scenery here merited more attention than we could well spare, especially the new world of mountains which suddenly became visible to the west and south-west. I noted one great mass of peaks which looked to me very high indeed, higher than anything in our neighbourhood except Mount Robson itself, and carried extensive snowfields and glaciers on their flanks. They might have been any distance from 40 to 60 miles away, and I have not been able to identify them on any map. But I was less interested in them at the time than in the question whether we should get to the col and down to the lower levels of the Robson Glacier while daylight lasted. We were still a considerable height above the col and as each successive tower was surmounted or turned, there was a moment's anxiety as to whether it would "go" on the other side. Not till the

last fifty feet of the descent did we see our way clear before us, and, on the other side of the col, a comfortable slope of *névé* leading down to the head of the glacier. We raced over the col, without stopping to inspect the descent towards the Grand Forks Valley, and round to the opposite side, and felt that for the first time we were really "out of the wood." We did then pause for a moment to look at the glacier which leads up to, or down from, the lower end of the trough between the eastern wall and the Helmet; its ascent is quite practicable, and it thus provides a third route, and the best and quickest one, to the base of the wall.

Inderbinen took the lead again at this point, and trotting down with admirable decision and rapidity, landed us safely on the lower level of the glacier with a good half hour of daylight on hand; the Extinguisher was reached just as darkness fell. We rested and took things easily here for a time, feeling that we were to all intents and purposes at home, and were rather taken aback when we rose to begin the last stage of the journey, by the discovery that it was absolutely pitch dark. Hastings had hardly got out his compass and started when rain began to fall heavily, and presently there came a vivid lightning flash, followed by a reverberating crash of thunder; it really looked for a time as though the day's adventures were not yet over. However Mount Robson was only having a last bit of fun with us and did not really mean mischief. Only the outer fringe of the thunderstorm reached us, and the rain after coming down in torrents for a spell, gradually abated its violence. For the rest, I was so well satisfied to have got thus far, that I accepted quite cheerfully the prospect of perambulating slowly in Hastings' wake for the remainder of the night and hopping at intervals over small crevasses. But things did not come to that pass; after a couple of hours the clouds lifted a little and we could see where we were.

Hastings had steered with wonderful accuracy and in a few minutes the surface of the glacier began to slope gently downwards; we had reached the snout. By 11.30 we were in camp and Captain Amery emerged in pyjamas to join us in a final supper. So ended an eventful and memorable day.

Though we had failed and began the homeward journey with a rankling sense of defeat, we had at least made the most of our one and only opportunity. Rain fell almost continuously on the 8th, 9th and 10th of September and the 11th showed little sign of any lasting improvement; it was clear that the season for high climbing was over, so Captain Amery started with Yates for Tête Jaune Cache, he and his brother having arranged to complete their trip by a journey in a canoe down the Fraser, and so round to Ashcroft. On the 12th the whole camp broke up; Amery went off with Keller, the owner of the canoe, down the Grand Forks Valley to the Fraser, where they joined the rest of their party two or three days later. I believe they were the first people to make the complete circuit of Mount Robson. The rest of us started on the back trail. We reached Entwistle without any incident worthy of record on September 30th and set off by train the same night for Edmonton where we arrived at 10 a.m. on October 1st, being probably the first pleasure party to travel by the Grand Trunk Pacific Railway.

TO THE TOP OF MOUNT ROBSON.

TOLD BY KINNEY AND PHILLIPS.

Narrative by Rev. G. Kinney.

"Give me your hand, Curlie." "I'll give you my sock," says Curlie. Thrusting into my mittened hand his gloved one, over which he had pulled a woollen sock for better warmth, Donald Phillips and I congratulated each other on at last succeeding in capturing that most difficult peak, Mt. Robson. We stood on the needle point of the highest and finest peak of all the Canadian Rockies, and the day was Friday, August the thirteenth, 1909.

I doubt if ever a peak was fought for more desperately, or captured under greater difficulties, than was that of Mt. Robson. Situated in the heart of the Rockies, some fifty miles or more north of the Yellowhead Pass, and hundreds of miles from civilization, the mountain could only be reached by pack-train after long weeks of strenuous effort, through trackless forest and muskeg, by nameless mountains and raging torrents. And I have the honor of being the first white 'man ever known to have stood on its ragged sides.

Dr. A. P. Coleman, Geologist of the University of Toronto organized an expedition in 1907 to capture Mt. Robson. The party consisted of the Doctor and his brother, L. Q. Coleman, myself and a helper. The four of us, with our pack-train of ten horses and outfit, left Laggan, August 2nd, 1907. We followed the Pipestone, Siffleur, Saskatchewan and Athabasca Rivers; crossing the Pipestone and Wilcox Passes. For weeks we made our own trails through the wilds, and forced our way

through hundreds of miles of tangled underwood. We rested our weary limbs by many a beautiful lake and babbling brooklet, while our camp-fires lit the dark shadows of ravine and cliff. Rafting our stuff over the mighty Athabaska, across which we had to swim our horses, we hurried over the Yellowhead Pass, and swung down the Fraser. But our trip that year left Mt. Robson still unconquered, though we explored its western side, and I discovered Mt. Turner and "The Valley of a Thousand Falls."

Smarting under our former failure, the three of us renewed our attack in August, 1908. This time Dr. Coleman got John Yates, an experienced packer to take us in charge. Going in by way of Edmonton, we followed very nearly the route the Grand Trunk is now taking, and crossed the Yellowhead and followed down the Fraser as far as the Moose River, a tributary of the latter. This time we attacked Mt. Robson from the east side, by tracing the Moose River to its source and then a branch of the Smoky. But the story of our desperate fight for the peak of Mt. Robson that fall is briefly told in the *Alpine Journal* of 1909. The region for miles around this splendid peak was explored, and many peaks captured all about it. The mountain itself was attempted on several occasions, but the difficulties being too much for us, we had to give it up, after spending twenty days at its foot.

I left the mountain that fall, believing that I had had my last try at it. But by the time the next spring had come, Mt. Robson had such a hold upon me that I could not rest satisfied until I had had another try at it. I again made arrangements with John Yates for the trip, and planned to be at Mt. Robson several weeks earlier than the year before. In May I received word that foreign parties had designs upon the mountain. Telegraphing Yates that I was starting at once and expected to meet

him on the trail, I hurriedly borrowed some money and, the second of June, 1909, left Victoria for Edmonton to outfit an expedition of my own. I had counted on one of my brothers making the trip with me, but at the last moment he could not get away. At Calgary, the President being absent, I could not accept the grant of a hundred dollars, that the Alpine Club had so generously made me, because I was at that time alone and could get no one to make the trip with me. At Edmonton, money that I had expected to be at the bank for me failed to materialize, and a letter of introduction that would have made matters easy had been misplaced. I was in Edmonton about a week before I finally got my outfit together. That week's delay nearly cost me the prize, for by it I got caught in the floods of the Athabaska. Another disappointment, in the shape of a letter from Yates, awaited me in Edmonton, telling me it would be utter folly to think of starting on a trip to Mt. Robson at that time, for a very late spring had left the mountains and passes full of snow. But I had gone too far to back out then, and snow or no snow I would make the attempt. On Friday, June 11th, with only two dollars and eighty-five cents in my pocket, but with three good horses packed with three months provisions, I started off alone for Mt. Robson, hoping to pick up someone on the trail who would share fortune with me. For hundreds of miles across the prairies and through mountain vastnesses I fought alone the fearful difficulties of that trip, threading my way across treacherous bog, or swimming my horses across mountain torrents. On the McLeod River I picked up an old-timer, who wanted to go along with me. Selling him one of my horses and half of my provisions we shared together, for a few days the joys and hardships of the trail. But the dangers of the trip and the floods of the Athabaska were too much for him, so he dropped out and I was alone again with only two

horses. I nearly lost my whole outfit in the swollen Rocky River, and my saddle-horse and I had to swim for our lives. Then a mighty cloud-burst flooded the entire valley of the Athabaska, beyond anything ever known in those parts before, leaving me stranded on a little island, and my horses on another, in the midst of those swollen waters. On that occasion I had to shift camp three times, wading waist deep through the raging waters, carrying my provisions and outfit on my back to a place of safety. The floods not only made the rivers impassable, but also the small streams as well, so that I had to make a trail over dangerous mountain sides. When I reached John Moberly's, the half-breed's place where I expected to swim my horses across the Athabaska, I found several parties of Indians and prospectors held up by the floods. That night the Indian dogs stole all my store of bacon. To make matters worse the Indians had no pemmican, and all I could buy to replace my stolen meat was a can of lard.

It was at this place, and on the following day, that Donald Phillips rode into camp, wearing on his Stetson hat the silver badge of the Guides' Association of Ontario. Phillips, a sturdy youth of twenty-five was looking up the country for future guiding purposes and I soon had him interested in Mt. Robson. He was on his way back for provisions and had his camp on a little island, half a day's ride down the Athabaska, where he, too, had been caught in the floods.

Narrative by Donald Phillips.

In July of the year 1909 I was out on a prospecting trip in the mountains along the Athabaska River and its tributaries. On the 6th of July I got marooned by the floods that followed a big cloud-burst, and for six days I had to stay on a small sand-dune island about a mile

above Jasper Lake. On July 11th the floods had gone down quite a lot but the water was still pretty high in the Athabaska. As I was becoming pretty tired of my little sand-dune I thought I would try to get as far as John Moberly's, a half-breed Cree who lived about six miles further up the river, so I took my saddle horse and started on what to me was an unknown trail, that in places was flooded for half a mile with muddy water. However, my little saddle mare behaved fine and took everything I put her at, and three times she had to swim while crossing creeks.

I arrived at John Moberly's about noon. John told me that there were three white men camped just above his house, so I went up to see if it might be anyone that I knew. In this I was disappointed as all three were total strangers to me, but acquaintances and friendships are easily made out in this country and I soon learned that two of the party were from Chicago and had been on a prospecting trip down to Tête Jaune Cache on the Fraser and were now returning to Edmonton. The third member of the party turned out to be the Rev. Geo. Kinney, of Victoria, B.C., a member of the Alpine Club of Canada, who was on his way all alone to Mt. Robson, which it was his purpose to climb. He was in rather tough luck just then, for an old chap he had picked up at Medicine Lodge on the McLeod River, and who was going along for company and to see the country, had got "cold feet" when the floods struck them at Rocky River, where they nearly drowned a fine saddle horse and lost part of their outfit, in fact did lose their only tent and the tripod for Kinney's camera; so that when they reached White Fish Creek, about the middle of Jasper Lake, Mr. McBride decided that to go back was his forte, especially as a breed had told them that there were several more creeks that were backed up from the Athabaska and the horses would have to swim. Therefore, making a divi-

sion of the grub, they had parted. Mr. Kinney then followed some breeds over a rough high-water trail and got to John Moberly's where he decided to lay over a few days and let the water go down before he started again. Here the Nichi dogs ate up all the bacon he had while away from his camp, which consisted of a six by twelve feet strip of balloon silk stretched over a ridge pole, a rather disagreeable shelter during a driving rain or while the mosquitoes were bad.

Mr. Kinney was very anxious that I should go with him to Mt. Robson; and so persistent was he that by the time I was ready to return to camp he had persuaded me to accompany him on the trip. He rode and swam back with me to my camp that night, and the next day we got my outfit across Jack Creek in an old dugout canoe to a place where we could reach the high-water trail. We then swam the horses over, packed up and arrived again at Moberly's by noon in a drizzling rain and about frozen stiff. The two Chicago fellows, with genuine mountain hospitality, invited us to have dinner with them as soon as we had got our horses unpacked and the saddles off. Dinner over, we got our camp up and spread out our pack covers and saddle blankets to dry as the sun had put in an appearance. That night we all attended a "tea dance" at one of the tepees and while we were away one of John's cows ate up two cakes of soap and a couple of gunny sacks at our camp. John's cows have better appetites than an army mule or an ostrich. The following day we got John to ferry our duffle across the river in his big dugout canoe and then swam our horses across. After packing up we went about a mile to Mr. Swift's tony ranch and farm. It is customary to stop over a day at Swift's, as this is the last of civilization. But alas for Swift! his big day is now past; for the coming of the railroad brings a change over all the old ways and good old days of the pack trail.

During the afternoon while I stayed in camp and did some cooking, Mr. Kinney went out and picked enough wild strawberries for supper. The next morning, after getting a few supplies from Swift and a couple of pecks of potatoes, we started westward and camped early at Caledonia Creek, the first tributary of the Miette River. In a little lake at the head of the creek, about a mile from camp, we caught some forty rainbow trout. Here I first learned that Mr. Kinney was a preacher, for at the lake he met two prospectors and one of them asked him if the preacher that was with Dr. Coleman's party had got "cold feet." This was too good for Mr. Kinney to keep and he had to tell me about it when he came back to camp. Of course, after that, I had to lay aside any superfluous language that comes in handy to a fellow driving pack horses or doing other ornery jobs where patience becomes a burden.

The following day we made to Dominion Prairie, some four miles from the Yellowhead Pass, having covered about twelve miles that day over the worst trail that I have ever experienced. The trail is bad at the best of times but the cloud-burst had flooded the whole river bottom and left a foot or two of mud, so that we had to stay in the saddle all the time; and the mosquitoes were about as thick as the mud. The next day we made a short drive to a nice camping ground midway along Yellowhead Lake. A short drive again on the following day, which was Saturday, and we camped a mile west of Grant Creek, the first large creek running into the Fraser west of Yellowhead River. Here we camped over Sunday. By this time I had got Mr. Kinney's grubstake sized up and could see that we were going to be short of provisions. He had assured me before starting that he had plenty of provisions for the trip. I had but a scant month's grub myself when I met him and had intended to go in for more in a couple of weeks.

And now we were on the trail with a short month's grub-stake and the chances looked to me that we might be a good deal longer than a month out. But as we had a rifle along I wasn't a bit alarmed at the shortage and decided that as goats were plentiful I would have a try for one while we laid over Sunday. Luck was against me, however, for it snowed all Saturday night and Sunday morning and the alps where the goats generally stay were covered with snow, and, although I spent the whole day up there in the cold, all I saw was one marmot whistler.

Monday we did not find our horses until noon and got a very late start. We found the water in the Moose River low enough to ford without getting anything wet but our feet. The party we met at Caledonia Creek had lost most of their outfit in this river a few days previous. A mile further west we turned off the Fraser River trail and headed north up the Moose River Valley. The only sign of a trail from then on was an occasional blaze on a tree, but the logs and windfalls were more than occasional; they were continuous. Packs had to be overhauled and ropes tightened before we had nicely got started and in the course of the next mile or so we had to repack Mr. Kinney's pack-horse three times. The horse was failing and the cinches were up to the last notch, so at the top of the hill where the feed was good we camped; as we had lost so much time already that day that we could not hope to make the first camping ground up the Moose. After putting up camp, Mr. Kinney went out to pick wild strawberries for supper while I cooked up the next day's supply of food and refitted his pack saddle.

Getting a good start next morning we dined at the camping place that we had intended to make the day before. That afternoon we passed the forks of the Moose and some beautiful falls and camped at night on

a big grassy shingle flat well up the next branch of the Moose River. A tempting valley and a big glacier invited exploration but our time was limited, and the next morning we struck into the woods eastward over to the last branch of the Moose. Up this east branch we travelled all day, stopping for noon where we lost the trail and had to cut through a half mile of *brulé*. After dinner the trail kept getting worse. There were no signs of anyone ever having travelled on that side of the river and we could not cross as the water was too deep to ford. All the afternoon we pushed through brush, fallen timber and wet muskegs where the mosquitoes nearly devoured us alive. Just before dark we found a place that was above water level and camped for the night. The next forenoon we made nearly to the summit of the Moose Pass by noon and while eating dinner it started to rain. The rain continued most of the afternoon so that we did not again go on but camped there over night without stretching the tent. We were at tree line and could get no tent poles, so just tied the tent up as a "lean-to" between some stunted spruces. The next day was fine and showed up to advantage the beautiful grassy slopes and alps of the pass, and the pretty little parks at both end of it at tree line. Crossing the summit we encountered a lot of rock slides and much avalanche snow. The snow was hard, and good going for the horses, but the rock slides were bad. At the northern slope of the pass we struck the head-waters of the Big Smoky River. Just as we got below tree line again we came up close to a big bull caribou. Here was our chance to replenish our larder. Mr. Kinney dismounted, got his rifle unfastened from the side of the saddle and shot at the caribou, which was less than fifty yards away, and scored a clean miss. "Here," he says, "you shoot." I took the rifle, dropped on one knee and fired nine shots while that caribou trotted up towards us and stampeded our horses. Then he seemed to lose interest in the show

and departed. On examination of the rifle we found the barrel had got bent about a quarter of an inch out of true. I was too disgusted to even swear and wanted to kick myself for not bringing my own rifle along instead of caching it at Moberly's. We saw two more caribou in the next mile but didn't bother them. We didn't think that they would like to be shot at with a crooked gun.

That afternoon we got our first view of Mt. Robson and the same evening camped at the lower end of Lake Adolphus, four miles from its base. Next morning we traversed the shore of Lake Adolphus and the big shingle bar at the foot of Mt. Robson Glacier where both the Smoky River and the Grand Forks find their source. Past Berg Lake, which is ever full of ice-bergs, that day and night, all summer long, continually keep breaking off the glacier that overhang the waters of the lake. Down they go with great splashes and reports like cannon. Close to the river, on a bench at the foot of Mt. Robson, we erected our silk tent, to be our home and shelter until we should scale the heights and stand on the summit of the lofty peak of Mt. Robson. Sunday, July 25th, we stayed around camp and rested for our climb on Monday. From our camp we picked out what looked like a pretty easy route up the first tier of cliffs. During the afternoon we heard a great rumbling and roaring and, looking across the valley of the Grand Forks to a lofty mountain several miles away, we saw a big avalanche descend from near the summit to a glacier below. The sight was grand indeed.

Narrative by Rev. G. Kinney.

From where we camped, Mt. Robson rose in one sheer unbroken wall from base to highest summit, and at such a fearful angle that a snow cornice, breaking off

the crest, would fall seven thousand feet before it could come to a stop. Yet we spent no time looking for a chance to climb, for I knew of a narrow rugged way up those walls of rock and crumbling ledges that I had found the year before. Monday afternoon, with fifty pound packs on our backs, we worked our way up the cliffs and narrow ledges of that north shoulder of Mt. Robson, till we climbed its summit and reached the big shale slope on the northwest side of the mountain at about 9,500 ft. altitude. There in the shelter of "Island Cliff," an isolated wall of rock on the shale slope, we spread our blankets and watched the setting sun paint a wonder-world with its glorious colors. We called that spot "Camp High Up." At sunrise next morning we started enthusiastically for the peak. The year before I had crossed alone that shale slope to a big shoulder of cliff, nearly a mile to the south, and then in a blizzard had climbed some five hundred feet of cliff, till my aneroid read 10,500 ft. The storm was so thick that I could see no distance; but from photographs that I had taken of the western side, I believed it possible to make the peak, if that shoulder on the west could be climbed. But when Phillips and I stood on the shale slope, and looked at the rugged cliffs above us, we believed, by working our way up its snow-filled couloirs, we could reach the peak quicker than by going around to the south according to the first plan.

This west side of the mountain we found free of snow to about the eleven thousand foot line; but the cliffs above the shale slope were more difficult than we imagined, and it was slow work. The snow in the couloirs, that we had thought would offer good climbing, was so steep and hard that it could only be climbed by means of laborious step cutting. From early morning, till three o'clock in the afternoon, we struggled up the wall of rock and ice, and in all that time we succeeded

in reaching an altitude of only a little over eleven thousand feet. The weather was glorious, and the scenery of this show spot of the alpine world beggars description. The warm sun kept the avalanches busy all about us, and loose rocks would frequently whistle past. Sometimes these came from cliffs so high above that, without any warning and coming seemingly right out of the sky, they would scream past in awful flight to be engulfed in the silence below. We could hear them strike nothing, either coming or going.

In coming down that afternoon we discovered a far easier way up than the one we had tried, so we made up our minds that we would give it a try next time. Returning to our "High Up" camp, we cached blankets and instruments, and then hastened to our permanent camp at the base of Mt. Robson, for more provisions. Wednesday, July 28th, we again climbed the cliffs of the north shoulder, and made our "Higher Up" camp that night, in the cliffs above the shale slope, at ten thousand feet altitude. Here we slept on a little ledge so narrow that there was but room for the two of us to lie close together, and we had to build a little wall of stone, to keep from rolling off the mountain-side. Though the weather was fine, we were very cold, and the wind at that altitude was terrific. All the peaks for hundreds of miles were below our level, excepting Mt. Turner to the north, a fine twelve thousand foot peak on the other side of "The Valley of a Thousand Falls." The grinding avalanches and the distant roar of countless waterfalls, sang our lullaby. We had carried some dry wood with us and were able to warm over a stew of wild meat for breakfast; then, in the crisp early morning, July 29th, we tried for a second time the rugged walls of the northern face of Mt. Robson.

So successful were we, that by half past nine we had reached an altitude of eleven thousand feet. Here



Rev. Geo. B. Kinney, Photo

MT. ROBSON FROM ROBSON PASS



Rev. G. B. Kinney, Photo

MT. TURNER FROM 12,000 FT. ON MT. ROBSON
Looking Across the Valley of a Thousand Falls

we came to an unscalable wall of rock. Our only possible way by it was up a sixty or seventy degree slope of ice, which terminated in a jagged crack in the wall, where we had to climb some twenty-five feet straight up in the air. It took us so long to cut steps up that great slope of ice, and the ravine was so difficult that it was noon before we conquered them. From then on we found every possible lodging place loaded with snow, making our climb not only more difficult but adding danger as well. The sun swinging round to the west brought a new enemy. The snow on the sheltered cliffs began to melt making our footing on them exceedingly treacherous. And not only were little streams forming in every draw and couloir, but loosened masses of rock and ice began falling on every hand. We reached an altitude of over twelve thousand feet, and our worst difficulties seemed nearly over, but the day was too far spent for us to make the peak and ever get back to safety, so reluctantly we turned back.

For more than a thousand feet down those upper cliffs of rock our every step was fraught with fearful danger. Not only did we have to get down gullies dripping and streaming with water, where falling rocks and avalanches were a constant menace, but the now melting masses, that covered every ledge, threatened to slide from under our weight and drag us over the cliffs. We found the steps we had cut in the ice slope of the couloir below had nearly melted away, and that the whole mass looked as if would slip down over the cliff if we so much as touched it. But it was our only possible way down, and we had to hurry, for each moment but added to our dangers. We made a cairn at eleven thousand five hundred feet altitude.

After we got below snow line, we made good time, for Phillips was fast becoming an expert in climbing. Reaching the level of the big west shoulder, up which

I had climbed in 1908 in a blizzard, I left Phillips in charge of my camera, and for half a mile followed the narrow ledges, till I stood on the summit of that noble view point. The sun was just setting, Phillips was a mere dot on a cliff to the north, the lake that Dr. Coleman named after me, and the "Valley of a Thousand Falls" lay eight thousand feet directly below. These and the valley of the Fraser, with its little thread of silver, were being engulfed with darkening blues and indigos as twilight flooded the innumerable peaks and glaciers on every hand. Above me swept a long slope of snow clear to Mt. Robson's highest pinnacle. Though tipped at a fearfully steep angle and bands of black across its white spoke of cliffs to climb, the contrast it presented to the almost perpendicular cliffs we had been climbing during the past four days, filled me for the first time with joy and confidence of ultimate success. I hurried back to Phillips and told him the good news, and we determined to make the top of that west shoulder our "Highest Up" camp the next day.

This little side trip of mine had delayed us considerably. We had planned to enjoy a real supper and to sleep comfortably that night in Camp Robson at the foot of the mountain. In fact we had to cut steps in the ice of the steep couloirs and get down the last five hundred feet of cliffs in the dark of night, before we reached our "Higher Up" camp in the cliffs. There was nothing left for us to do but camp there again, at ten thousand feet altitude, in the wind and cold on that little ledge. I started a little fire and warmed up our stock of stew, while Phillips made our bed. There, partly covered under our blankets, we ate our supper in the dark and watched the gathering storm-clouds blot out the white-capped peaks at our feet. The storm soon swooped down upon us burying our little world in white, while the tempest of wind threatened to tear the very cliffs to

pieces. I do not suppose there is any place where the wind blows so hard as on an exposed mountain top. Phillips and I curled up so closely together that we managed to keep from freezing, but it was a most uncomfortable night.

By daylight it was storming as hard as ever. The rocks that had been warm in the sun of the day before still retained enough heat to melt some of the snow that fell, so by morning the drip from the cliffs had wet our blankets through, and we were driven to seek Camp Robson, at the foot of the mountain, several thousand feet below. Packing up our wet blankets and without any breakfast, for we could not start a fire and we were too cold to eat, we plunged through the storm and glissaded down a long slide of snow. A thousand feet lower we were below the storm, and in a couple of hours had got down the cliffs of the north shoulder, and were once more comfortably feeding at our camp fire at the base of the mountain.

Narrative by Donald Phillips.

If I remember correctly, we slept part of that day as we were a little behind on sleep. The weather continuing bad, we spent the next four days down stream around Lake Kinney exploring and fishing, but the fish were a minus quantity and, as we only got one young grouse, we were soon on half rations. We found three different places to get up the long line of cliffs that extend west from the base of Mt. Robson across the valley of the Grand Forks, up which Dr. Coleman's party could not find a way three years ago. One of these with very little work could be made passable for a pack train, for the deer, bear and goat use it now.

Our grub getting pretty scarce I decided to take the damaged rifle and go back to the Smoky River and

see if I could get a caribou. I straightened the rifle the best I could, and taking a little grub and one horse started out. I returned three days later with two fool hens that I had shot with my Colts 32 revolver. Our trusty rifle had failed at every shot to hit an old billy goat, although I had shot away all but five of our supply of cartridges. So now things did look blue indeed. We would have to go on slim rations if we hoped to hold out much longer, for our flour was down too near the bottom of the sack to look good; in fact only enough remained for another pan of biscuits and everything else was about as scarce. If I remember correctly, it was about the second day after I got back from the hunt that we tried our third attempt to scale Mt. Robson, but fate was against us again. We had only got up to about 10,000 feet when it started to snow. A few hundred feet higher up we had to abandon the attempt, for the snow was already four inches deep and snow slides came tearing past us every minute or so. Mr. Kinney lost his cap in one of them. Luckily for him, on the way up, he had found his hat which had blown over a ledge the first time that we had climbed.

We cached our packs of grub and bedding and firewood in a little cave, and hiked for main camp where we arrived after dark, soaked to the skin and all our dry clothes cached up on the mountain.

For a few days it rained and snowed more or less every day, and between showers we made trips after game with our pocket guns and lived almost entirely on "Mulligans" made of blue grouse and whistlers. One afternoon when the clouds lifted a little I went after goats across the river from camp and shot away the remainder of our rifle cartridges. After the last cartridge was gone a big old billy walked up to within twenty feet of me.

Narrative by Rev. G. Kinney.

At last the weather began to clear up, and Monday, August 9th, we again climbed the rugged north shoulder. Crossing the difficult shale slope, we passed the camp spots of our former trips, and with our heavy fifty-pound packs, struggled up those fearful cliffs till we reached an altitude of nearly ten thousand five hundred feet. We would soon have reached the top of the west shoulder, when the storm caught us. For a couple of hours we had watched the storm-clouds gather, then gradually obliterate the peaks; yet we pushed on, hoping they were only squally. We were climbing in a narrow couloir when it began to snow. We did not mind it at first but in a few minutes it had snowed three inches, and slides began to come down. Realizing at once our danger, we hastily cached our packs under a sheltering rock and hurried down the cliffs. But we had a bad half-hour before we got out of danger and glissaded the draw down the long shale slope. We got to Camp Robson at the foot of the mountain in a discouraged frame of mind, for we were hundreds of miles from civilization, with scarcely any provisions and the mountain was still unscaled.

For three days it stormed, and we lived on birds and marmot (a kind of mountain ground-hog). Then Thursday, August 12th, dawned fine and clear. As we had lots of time to make our "Highest Up" Camp that day, we spent most of the morning repairing our boots and clothes and making ready for our final climb. After an early dinner we climbed the several thousand feet of cliff to where we had cached our packs the Monday the storm caught us. Shouldering the packs, we climbed more cliffs, and finally worked our way to the top of the west shoulder, 10,500 feet above the sea. Here, at an altitude equal to that of Mt. Stephen, we chopped away

a couple of feet of snow and ice, and feathered our bed with dry slate stones. We shivered over the little fire that warmed our stew and then, amid earth's grandest scenes, we went to bed with the sun and shivered through a wretched night.

Friday, August 13th, dawned cold and clear, but with the clouds gathering in the south. Using our blankets for a wind-brake we made a fire with a handful of sticks, and nearly froze as we ate out of the pot of boiling stew on the little fire. Then we laid rocks on our blankets so they would not blow away, and facing the icy wind from the south, started up the west side of the upper part of the peak. The snow was in the finest climbing condition, and the rock-work though steep offered good going. Rapidly working our way to the south, and crossing several ridges, we had reached, in an hour, the first of two long cliffs that formed horizontal ramparts all around the peak. We lost half an hour getting up this cliff, but finally found an easy way up it.

The clouds that came up with a strong south wind, had gradually obscured the peak, till by the time we reached the cliff, they were swirling by us on our level, and at the top of the cliff it began to snow. For a moment I stood silent, and then turning to my companion said: "Curlie! my heart is broken." For a storm on the peak meant avalanches on that fearful slope, and there would be no escaping them, so I thought that we would have to turn back, and our provisions were now so low that we would not have enough to make another two-day trip up the mountain. It meant that this was our last chance; but, to my surprise, it did not snow much, the clouds being mostly a dense mist. In a few minutes I said, "Let us make a rush for the little peak," meaning the north edge of the peak which was directly above us. "All right," says Curlie, from whom I never heard a word of discouragement, and away we started, keeping to the

hard snow slopes. Though these were extremely steep, the snow was in such splendid condition that we could just stick our toes in and climb right up hand over hand.

By the time we had conquered the second of the long ramparts of cliffs, that form black threads across the white of the peak, we concluded that it was not going to snow very hard, as the clouds were mostly mist and sleet. Swinging again toward the south, we headed directly for the highest point of the mountain, which we could see now and then through the clouds. Small transverse cliffs of rock were constantly encountered, but they were so broken that we could easily get up them, by keeping to the snow of the little draws. For hours we steadily climbed those dreadful slopes. So fearfully steep were they that we climbed for hundreds of feet, where standing erect in our foot-holds, the surface of the slopes were not more than a foot and a half from our faces; while the average angle must have been over sixty degrees. There were no places where we could rest. Every few minutes we would make foot-holds in the snow large enough to enable us to stand on our heels as well as our toes, or we would distribute our weight on toe and hand-holds and rest by lying up against the wall of snow. On all that upper climb we did nearly the whole work on our toes and hands only. The clouds were a blessing in a way, for they shut out the view of the fearful depths below. A single slip any time during that day meant a slide to death. At times the storm was so thick that we could see but a few yards, and the sleet would cut our faces and nearly blind us. Our clothes and hair were one frozen mass of snow and ice.

When within five hundred feet of the top, we encountered a number of cliffs, covered with overhanging masses of snow, that were almost impossible to negotiate, and the snow at that altitude was so dry that it would crumble to powder and offer poor footing. We got in

several difficult places that were hard to overcome, and we fought our way up the last cliffs, only to find an almost insurmountable difficulty. The prevailing winds being from the west and south, the snow, driven by the fierce gales had built out against the wind in fantastic masses of crystal, forming huge cornices all along the crest of the peak that can easily be distinguished from the mouth of the Grand Forks, some ten miles away. We finally floundered through these treacherous masses and stood, at last, on the very summit of Mt. Robson.

I was astonished to find myself looking into a gulf right before me. Telling Phillips to anchor himself well, for he was still below me, I struck the edge of the snow with the staff of my ice axe and it cut in to my very feet, and through that little gap, that I had made in the cornice, I was looking down a sheer wall of precipice that reached to the glacier at the foot of Berg Lake, thousands of feet below. I was on a needle peak that rose so abruptly that even cornices cannot build out very far on it. Bearing my head I said, "In the name of Almighty God, by whose strength I have climbed here, I capture this peak, Mt. Robson, for my own country, and for the Alpine Club of Canada." Then, just as Phillips and I congratulated each other, the sun came out for a minute or two, and through the rifts in the clouds, the valleys about us showed their fearful depths. The Fraser lay a thread of silver, over eleven thousand feet below. Before I could take any photos the clouds shut in again thicker than ever. We were nearly frozen, so could not remain at the top till the clouds should break. We could not build a cairn there, in which to cache the Canadian flag, that Mrs. Dr. Geo. Anderson, of Calgary, had donated, and our records; for if we left them in the snow they would have been lost, so we cached them on our return, in a splendid natural cairn, a few hundred feet below the peak.



Rev. G. B. Kinney, Photo

DONALD PHILLIPS ON MT. ROBSON
At Altitude, 12,000 ft.



A. L. Mumm, Photo

TUMBLING GLACIER AND BERG LAKE
N. W. Face of Mt. Robson

On three different little cliffs near the summit, we met with great difficulty in descending, but we finally managed. After caching our records and getting down near the twelve thousand foot level, we found a new danger that nearly finished us. The storm had increased, but the temperature had risen. In fact a chinook was melting the lower snows. We found our trail nearly melted away. To make the matter worse, the slopes were so steep that the snow never could lie very deep, even in the couloirs; and we frequently had to make detours around places where the ice or rock beneath the thin snow would allow of no footholds whatever.

It was so cold and stormy at the summit, we did not get anything out of our packs to eat. While I fixed the cairn Phillips ate some Peter's chocolate, and later on I snatched a moment to eat some, paper and all. But during the twelve hours climbing and returning on that slope, there was no time to do anything but get to the summit and then to safety. So very dangerous did the snow get, that our return trip cost us seven hours of distressing work, while the climb to the summit was made from our "Highest Up" Camp, at 10,500 feet, in five hours. We had to use the rope all the way down, and only one of us could move at a time, while the other got as good an anchorage as possible. But finally we reached the lower of the two bands of cliffs where we unroped, and then rapidly got down to camp "Higher Up," where we soon devoured everything edible in sight. The storm was raging fiercely above us, night was gathering, and we had thousands of feet of cliff still to descend before reaching Camp Robson that night, yet we lingered on the west shoulder, eating and resting, and oh, so glad that the peak had, at last, really been won.

It was a long three-hour struggle with our packs down those cliffs. We had half a mile or more of ledges to follow to the north there were several deep

gorges with ice steps to cross, then a long glissade and more cliffs. So it was long after dark before we reached Camp Robson and finished the big return trip from base to summit in twenty hours. We were so tired we could hardly eat or rest and our feet were very sore from making toe-holds in the hard snow. But we had stood on the crown of Mt. Robson, and the struggle had been a desperate one. Three times we had made two-day climbs, spending ninety-six hours in all above ten thousand feet altitude, so far north. During the twenty days we were at Camp Robson we captured five virgin peaks, including Mt. Robson, and made twenty-three big climbs.

Others will doubtless some day stand on Mt. Robson's lonely peak, but they who conquer its rugged crags will ever after cherish in their hearts a due respect and veneration for its mighty solitudes.

Narrative by Donald Phillips.

The following morning my feet were so bruised and sore that I could scarcely stand, but we determined to break camp and make a start on the return trip. We only had food enough for about four days short rations and it would be at least six or seven before we would arrive at Swift's where we could get more. When we got our duffle all packed ready to load up I went out to shoot Billy, Mr. Kinney's pack horse, as he had been sick with the fever all the time we had been at Mt. Robson. But I was spared an unpleasant task, as I found the poor fellow dead. We then waded across the river and brought in the rest of the horses, packed our outfit on my two pack horses, and, leading our saddle horses, we started on our return trip. At the foot of Lake Adolphus we camped that night and remained there over the following day, it being Sunday, and Mr. Kinney objected to travelling on Sunday. Considering

the state of our food supply, I thought this rather an extreme course of action, but Mr. Kinney claimed to be confident that we would be provided for. And as it turned out I was about as well satisfied for it snowed nearly all day.

Monday morning we got some "fool hens" between the branches of the Smoky River and, after dinner, at the summit of Moose Pass, we shot five rock-slide gophers, as Mr. Kinney called them, and five ptarmigan, so that we had a big old "Mulligan" for supper that night. But the birds with two exceptions were young ones about the size of robins. The next day was a very exasperating one, for Mr. Kinney, in trying to dodge the bad places we had struck coming up that part of the river, only got mixed up worse than before. In one place, trying to find a trail to higher ground from the river bottom, we got into such a fix that it took us an hour to cut our way back to the river. And, when the trail did go up, Mr. Kinney turned back to the river bottom after going half a mile up the mountain side, and we floundered there in muskeg and water for an hour or two before we struck the trail where it again came down to the river flat. Again, between the forks of the Moose, in the heavy timber, he wanted to travel west although we could see the valley of the west branch to the south. I suggested that we strike for it. We were both pretty cranky about that time and, when I said the way he came in was round about and crooked, he said that I had better go ahead and see what I could do. As much by good luck as anything I emerged from the timber scarcely a hundred yards from the camping ground. I was on the lead in the future.

The next day we made the Grant Creek on the Fraser after an all day drive. We had got a few more fool hens during the last two days, but "Mulligan" straight three times a day was getting tiresome and we

were ravenously hungry all the time. From Grant Creek we decided to make Swift's in two days, but the next day we overtook Mr. A. Trelle and his son Herman at Poplar Creek and they gladly shared their grub with us. And never before did "bannock," bacon and coffee taste so good. They insisted that we should travel with them for a few days as they were not going to make any stops until they reached Jasper Lake. We camped over Sunday at Caledonia Creek and, Saturday evening, Mr. Kinney, Herman and I caught fifty-two rainbow trout. A party of Indians camped beside us Saturday night and told us that Swift had told them that he thought we must have had a mishap up at Mt. Robson and that they had better have a look for us as they had to pass Mt. Robson on their way to Tête Jaune Cache.

At John Moberly's we met part of the English Alpine party on their way to Mt. Robson. They seemed quite confident of being able to reach the summit of the peak and said that they had records of 20,000 feet. But there are mountains *and* mountains, and Mt. Robson is about as nearly impossible as they make them. The rest of the English party we met three days later at Cache Boyett Flats. On the first day of September I bid Mr. Kinney good-bye at Medicine Lodge on the McLeod River. He had sold me the remainder of his outfit and was going to walk back to Entwistle at the Pembina and take the train from there to Edmonton and civilization.

THE ASCENT OF PINNACLE MOUNTAIN
AND
SECOND ASCENT OF MOUNT DELTAFORM.

BY J. W. A. HICKSON.

Pinnacle Mountain (10,062 ft. above sea-level) is so well known to all readers of this Journal through the excellent illustrated article by Mr. P. D. McTavish in the issue of 1908, that it would be a superfluous labor to attempt any re-description either of its appearance or situation. It will suffice to recall the fact that it forms part of the range of peaks on the eastern side of Paradise Valley, that it adjoins Eiffel Peak, and is separated from Mount Temple, the "monarch of the district" by Sentinel Pass. When the present writer returned from one of the upper ledges in August 1907, on what was a third unsuccessful attempt of this peak during that summer—the first having been made by Mr. Forde, of Revelstoke, with the Swiss guide Peter Kaufmann, the second by a party consisting of Mr. P. D. McTavish, the Revs. J. C. Herdman and George B. Kinney (since then the conqueror of Mount Robson) and the Swiss guide E. Feuz, Jr.—he felt that his chances of making the first ascent of this tempting prize had become greatly diminished. My guide Eduard Feuz, Jr., for whom this was the second attempt turned his back on the mountain saying in a temporary mood of annoyance and disappointment: "I won't try the wretched peak again." But I knew well that in the case of one of his enthusiastic and enterprising nature this attitude would not be a lasting one. The latter part of the summer of 1907 was most unfavorable for mountaineering in the Canadian

Rockies. After the beginning of August, cold and wet weather, attended by snowfalls at altitudes over 8,000 feet, prevailed till the first week of September. It was a heavy fall of fresh snow which brought about our failure on Pinnacle, for the chimney or "crack" in the precipitous tower near the top, (so well described by Mr. McTavish) not being practicable, the only alternative way of ascending the last few hundred feet seemed to consist in traversing the face of the mountain to the left. But considering the absolute rottenness of the rock, this was deemed too precarious a route to attempt under the physical conditions then prevailing, which included amongst other contrary factors a gale of wind.

As I was preparing to visit the Rockies the following summer, a severe illness overtook me and rendered me an invalid until late in the autumn. All expectation of ever capturing Pinnacle Mountain was put aside; it was even for a time doubtful whether my right arm would ever again be fit for the strain of mountaineering. In the meantime it seemed certain that Pinnacle would be scaled. But nobody tried it during the season of 1908. This appearing almost like a special dispensation of Nature in my favor, and having determined to spend a couple of months in the Rockies last summer, I decided to get into condition as rapidly as possible after reaching Banff, in order to make a more vigorous attack on what was now one of the few virgin peaks in the neighborhood of Lake Louise.

After some good scrambles on the mountains—including Mount Victoria—surrounding this ever enchanting lake, I started from the "Chalet" on the afternoon of July 28th for Paradise Valley, with Eduard Feuz, Jr. and Rudolf Aemmer (a new guide from Interlaken, Switzerland), with whom I had not previously done any climbing. He turned out to be a most capable fellow. On the way to our camping ground, the weather, which

had previously looked uncertain, assumed a more glowering aspect, threatening rain every moment, but none fell until after we had gone to bed. We were astir early but the rain continued till 5 a.m., before which hour we had hoped to have started on our climb. At this time the weather looked so unpropitious that I had, with gloomy resignation, practically given up the idea of attempting an ascent. But half an hour later there were signs of an improvement; so having taken breakfast we prepared to set out, and eventually left our camp—on the site of the A.C.C. Camp of 1907—by 6.30 o'clock, two hours later than we had originally planned. Shortly after we were on the way, a light drizzle began and continued with more or less persistency for the next two hours. So unsettled indeed, did the weather appear that it was not until we had ascended a respectable distance that we were certain of going on.

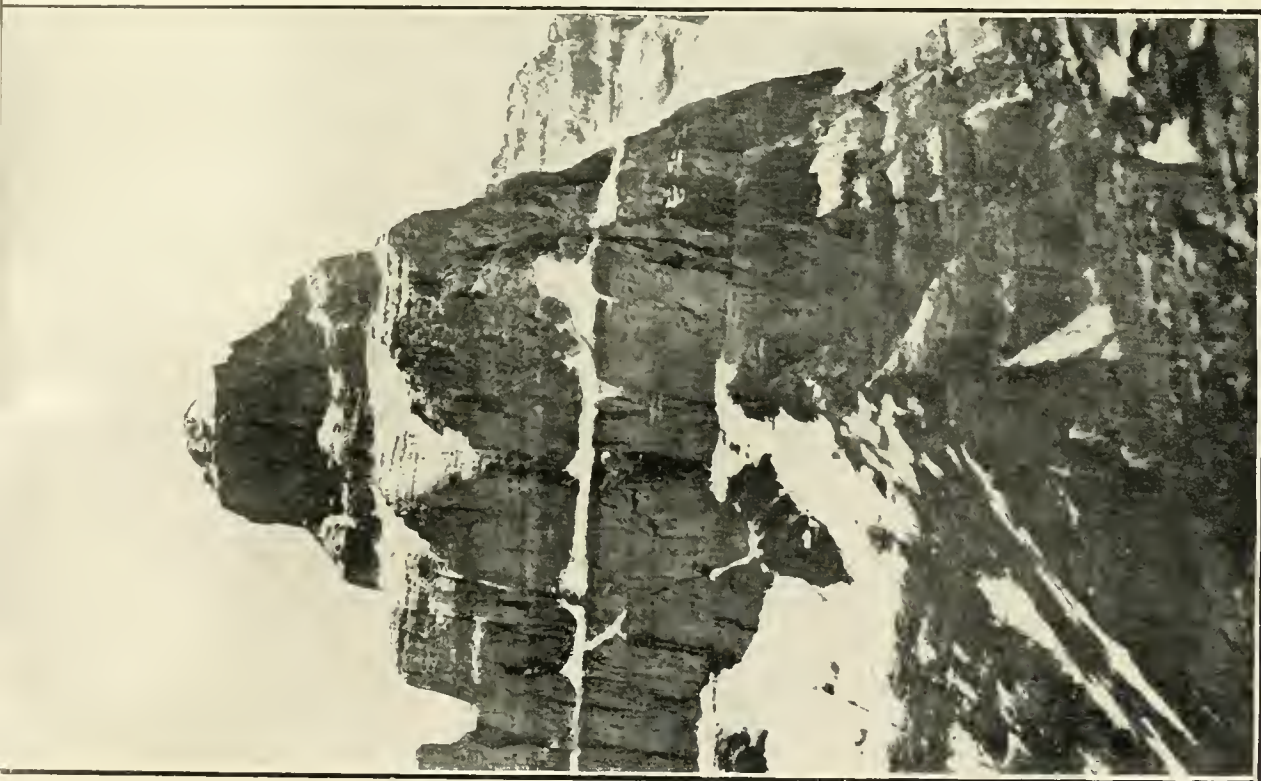
At first the route lies alongside the stream which issues from Horseshoe Glacier, and then to the left over a grassy slope adorned with brilliant flowers to an ascent over huge boulders and scree. After a slope of fairly soft snow is passed, one reaches a steeper slope on which we roped. The ascent of this was easy enough, and we proceeded rapidly until the steep *couloir* was reached, that had been climbed on an earlier occasion, and which was now in a more difficult and dangerous condition than it was two years before. It was, as Messrs. Forde and McTavish found it, filled with ice, thinly covered with hard snow, and necessitated the vigorous use of our axes for step-cutting. Loose rocks insecurely held by snow and ice rendered the greatest care desirable, lest some of the *débris* should be precipitated on the head of the last man on the rope. On reaching the top of the *couloir* we found ourselves on a narrow ridge which connects a *gendarme* to the main body of the mountain. From here onwards the hand-

holds were mostly unreliable on the friable rock. After some delicate rock-climbing which demanded caution rather than the exercise of gymnastic attainments, and after "negotiating" a somewhat awkward corner, we reached a perpendicular wall a couple of hundred feet in height. Following our previous route we now made a sharp descent into a kind of amphitheatre with a narrow ledge running under the wall and having a precipitous drop on the other side of about 500 feet. Crossing this ledge, we came out on the *col* which joins Eiffel Peak and Pinnacle Mountain. From here until within about 300 feet of the top the climb consisted in scaling a succession of more or less perpendicular faces, of no particular difficulty, but demanding constant attention and care owing to the rotten character of the rock. A photograph appended is typical of its state of disintegration.

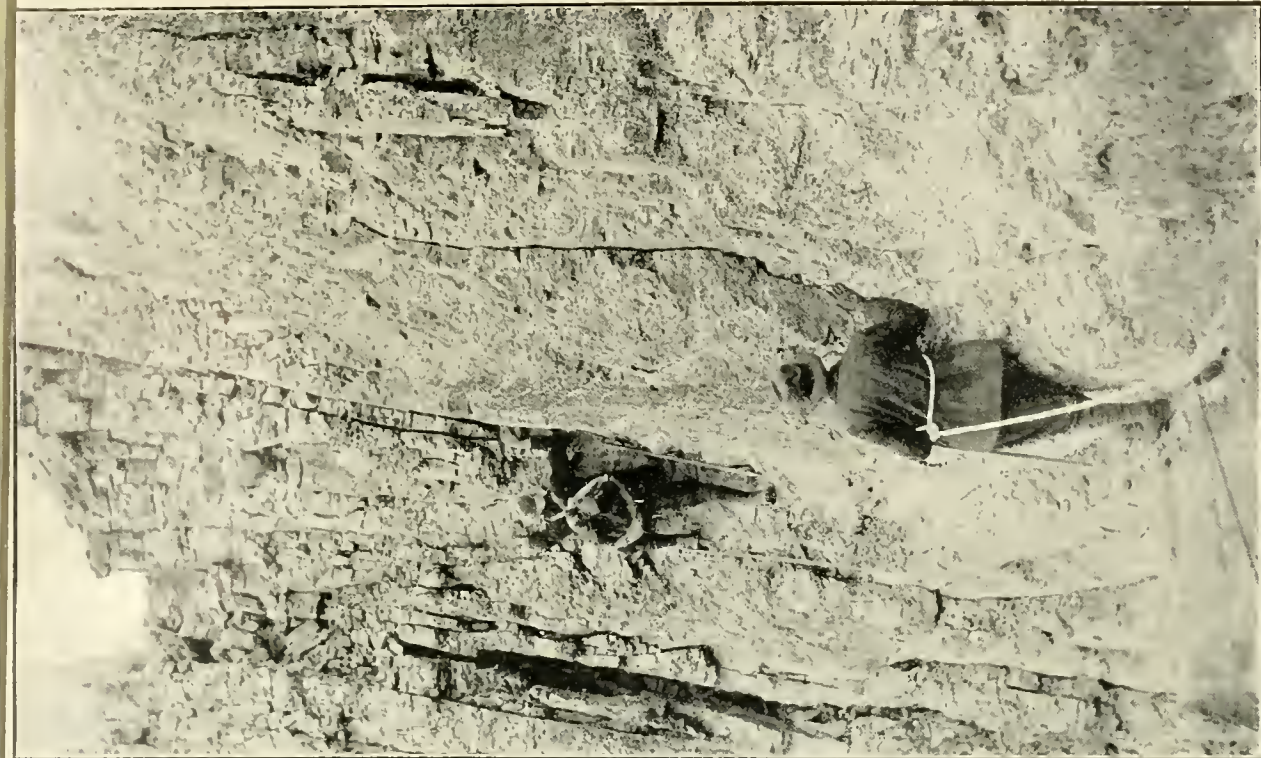
At 11.20 o'clock we reached the ledge under the precipitous black tower, which had been the halting place of our previous attempt. Vertical rock faces stood in the way of our further advance. Thus far our route had been the same as in 1907; but we had determined that from this point it should be varied. Resting for over half an hour we fortified ourselves with sundry refreshments, and discussed the *modus operandi* of attack.

The weather had by this time cleared; and, although there were occasional masses of clouds flitting about, there was, fortunately for us, almost no wind. Leaving to the right the "crack" which pierces the tower for a hundred feet, and through which the three previous parties had successfully attempted to ascend, we skirted the precipitous wall, and proceeding towards the left, tried as we had wished to do two years before, the face of the mountain towards Paradise Valley.

It was immediately realized that only very slow progress could be made in this direction, for the disinteg-



P. D. McTavish, Photo
PINNACLE MOUNTAIN FROM SENTINEL PASS



E. Feuz, Jr., Photo
CLIMBING ON PINNACLE MT.
Showing Character of Rock

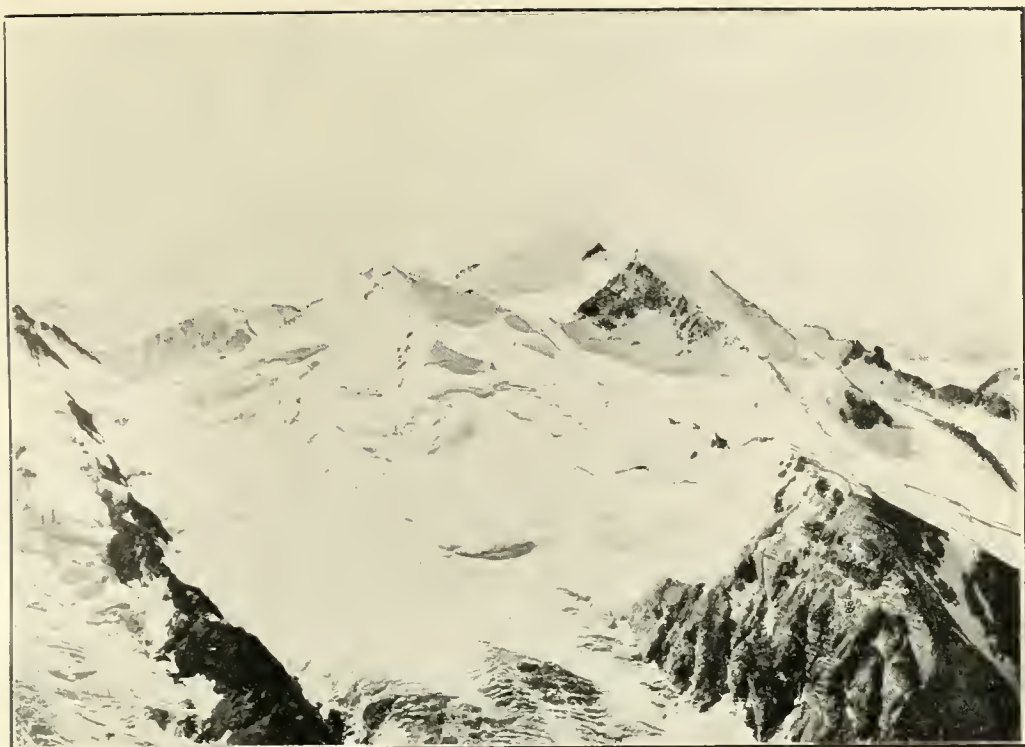
rated tawny-colored limestone rock was of a most treacherous character. It was covered for the most part with a glaze of ice, which when disturbed had a tendency to bring the eroded limestone away with it. It was hard to say whether the rock sustained the ice or *vice versa*; perhaps the support, such as it was, was mutual. In our attempt to turn a sharp angle I found myself sitting for about ten minutes—but for what seemed more like half an hour—astride a rocky protuberance, which appeared likely to give way at any moment, while Feuz was endeavoring to find a good footing on the other side. For a few minutes I almost regretted that I had come; for there was a sheer drop on either side of probably 2,000 feet. At many places there were no handholds; and we dared not touch the rocks with our ice axes lest we should precipitate downwards the insecure supports we were standing on. We were very much in the position of flies on a nearly vertical wall covered with sand which from time to time was crumbling off. There was no defined ledge to follow. Advancing gingerly with cat-like tread, and avoiding any spring or jerk which might detach the insecure footholds and leave us hanging precariously, Feuz picked out places here and there which offered the chance of a support, and we were glad when we found a piece of rock an inch or two wide and a few inches long on a part of which a nailed boot-edge could obtain a transitory grip. It is remarkable how very small a projection, if not slippery, will suffice for a temporary hold. Fortunately, not one of the party once slipped; thus avoiding any test as to how far he could have been held by the others. Luckily, also, we had lots of rope; so that we could allow about twenty-five feet between each person, and this enabled us at times to manoeuvre into better positions.

Our nerves throughout this period of two hours, during most of which only one of us moved at a time, were

at considerable tension; not a moment of slackness or diminution of watchfulness being allowable. A keen look-out was constantly demanded to meet an emergency which was not at all improbable. Nothing could be taken or was taken for granted, except that everything was unreliable and an accident might be expected. This is perhaps why none occurred. As Tyndall says somewhere in his "Glaciers of the Alps," "the thought of peril keeps the mind awake and spurs the muscles into action; they move with alacrity and freedom, and the time passes swiftly and *sometimes* pleasantly."

After advancing persistently and almost horizontally along the face of the wall for two hours, we saw an unexpected chance of reaching our goal more speedily than we had latterly hoped. This was offered by a large *couloir* leading to the "saddle" between the black tower and the summit of the mountain, which is not much higher than the top of the tower. Fairly steep and broad, the gulch contained some ice and snow. As we got down into it Feuz turned to me and said, "I think we've got him," of which I was already convinced. Crossing the *couloir* we rapidly ascended the rocks on the left side and at its top, to our great surprise, landed on a bed of shale, which by an easy slope led in a few minutes to the summit at 2.35 p.m. The last 250 to 300 feet, vertically measured, had taken us fully two and a half hours to scale.

It was with a feeling of great satisfaction that we sat down and basked in the warm sunshine. The atmosphere was very calm; the view of the Ten Peaks with Moraine Lake and *quondam* Desolation Valley, superb. Mount Deltaform, grim and most forbidding looking, in particular attracted our attention and suggested another climb. Mount Fay, with its huge snow-cap and cornice, which was frequently avalanching, Mounts Hungabee, Ball and Assiniboine, were prominent objects in the



A. O. Wheeler, Photo

MT. PURITY
Showing Battle Pass on Extreme Left



E. W. D. Holway, Photo

KILPATRICK AND WHEELER
From Summit of Mt. Purity

landscape. To the west and north the panorama is rather limited by Mounts Ringrose and Victoria, which are higher than the peak we were on. After administering again to the *corpus vile*, and crowning the vanquished peak with a stone-man, we took a few photographs, and at 3.30 o'clock commenced, rather reluctantly, the descent.

It is well known that in the majority of cases, descents are more trying and precarious, if not necessarily more difficult than are ascents; a statement which though disputed by the late Leslie Stephen, seems well founded on recognized physical principles that need not be here explained. Hence the guides were very unwilling to retrace the rather hazardous route by which we had made the last part of the ascent; if this could possibly be avoided. It was, therefore, decided to proceed from the "saddle" around the back of the black (and southerly) tower, skirt it if possible, and come down through the "crack." This would make a complete "traverse" of the mountain, would vary the climb, and be, as we believed, and as it turned out to be, more expeditious and less risky.

We followed a narrow, but firm, ledge for about fifteen minutes from the saddle around the southerly tower (next Eiffel Peak). It then became necessary to reconnoitre to see if the route proposed were further feasible. So the second guide Aemmer, assisted by Feuz, went ahead and soon returned to say that we could get down by roping off. This led to one of the most interesting and exciting bits of the whole climb.

At the corner or angle where the ledge we were on terminated there was a peculiar arrangement of rock which had resulted in the formation of a small square hole with nothing but sky to be seen on the further side. Under this hole there was a gap in the ledge of about three feet, with a drop of about fifteen feet into a dark

pit below. To cross the gap it was necessary to lie down flat on the ledge on the one side with face to the rock, stretch your feet to the rock on the other, your body thus spanning the gap, then draw yourself through the hole and gradually swing yourself into an upright position by the help of the rope and the handholds in the further wall of rock. It looked a more trying operation than it actually was because one had to turn somewhat sharply on emerging from the hole in order to stand up on a rather slender ledge. But there is practically no danger; when one is firmly held on the rope by guides, whose caution and resourcefulness, here as elsewhere, were admirable, and have fully justified the confidence which I have always reposed in their ability.

Having, with mutual assistance, all three surmounted this difficulty and having advanced a little further down the side of the tower, we perceived a way into the chimney already referred to, about sixty feet above its base. Here it was obvious that the only way of getting down was to rope off. Amongst other paraphernalia we had brought with us an extra short piece of rope, which could serve as a loop. It was now slung around a firm piece of rock, which was rendered more adaptable to the purpose by a little hammering, while through the loop was passed a second rope about 120 feet long. This being doubled still gave us the required length. I went down first, being held besides on another rope, so that no serious mishap could have overtaken me. For the first forty feet there were practically no footholds to be found, a fact for which we were prepared; but fortunately the rock was good—indeed, this is the only bit of firm rock on the mountain—and I got safely down and out of the chimney, after swinging once or twice like a bundle of goods, without any worse experience than having my clothing a little torn and with the feeling that there might be a permanent groove around the



H. G. Wheeler, Photo

PINNACLE MT. FROM PARADISE VALLEY
Eiffel Pk. on Right



J. W. A. Hickson, Photo

THE GUIDES ON THE SUMMIT OF PINNACLE MT.

centre of my body. Feuz descended next and took a photo of Aemmer sitting at the top. As Aemmer was descending he disturbed a small stone which danced down with great force and, to Feuz's chagrin, cut off about twenty feet from the lower end of his fine manilla rope. We then pulled down the rope, but, of course, had to leave behind the loop, which may be serviceable to some later party.

It was a few minutes after 5 p.m. when we thus regained the ledge, whence we had started five hours earlier on our stimulating trip to the summit. After a rest of twenty minutes we started to retrace our route of the morning. The descent occupies almost as much time as the ascent, owing to the character of the rock, and the fact that after reaching the *col* connecting with Eiffel Peak, one has to again ascend several hundred feet in order to skirt the vertical wall. So it was nine o'clock when, after a short glissade, we again reached the grassy slope connecting with Sentinel Pass; and it was almost dark enough for the lantern as we got back to camp about three quarters of an hour later.

SECOND ASCENT OF MOUNT DELTAFORM.

When we were on the ridge of Victoria towards the end of July, Mount Deltaform, the second highest of the Ten Peaks, had particularly attracted our notice, and I informed Feuz, who heard the news with pleasure, that I intended trying it before returning home. It is, with Hungabee, undoubtedly one of the two most formidable looking mountains in the neighborhood, and had the reputation of being an exceedingly difficult climb. What Kristian Kaufmann, one of the ablest of the Swiss guides, who have visited the Rockies, told me about it, combined with Professor Parker's rather terrifying

account of the first ascent, contained in the Record Book at Lake Louise Hotel, had previously aroused my curiosity and desire to attempt it. My resolve to do so became quite fixed after seeing the huge, sharp triangular-shaped peak again from the summit of Pinnacle. But it was not until the 31st August, that simultaneously with that unmanageable element the weather, after a week of boisterousness, having declared itself on our favor, I was able to procure two guides—fortunately the same two who had accompanied me on Pinnacle—which number was regarded as indispensable to the success of the expedition. Except for the uppermost couloir of ice, I should not, however, hesitate to climb it again with *one* guide such as Feuz. But whether he would be willing to go with me alone is another question.

Setting out about noon from Lake Louise with a packer and a couple of pack horses to carry our tents and supplies, we followed the trail around the base of Mount Temple, and passing Moraine Lake on the left, proceeded to the head of the Valley of the Ten Peaks where we pitched our camp at the side of Wenkchemna Lake, and opposite to the north-west face of Mount Deltaform, the precipitous escarpments of which, seamed with glaciers and snow falls, rise vertically over 4,000 feet above Wenkchemna Glacier.

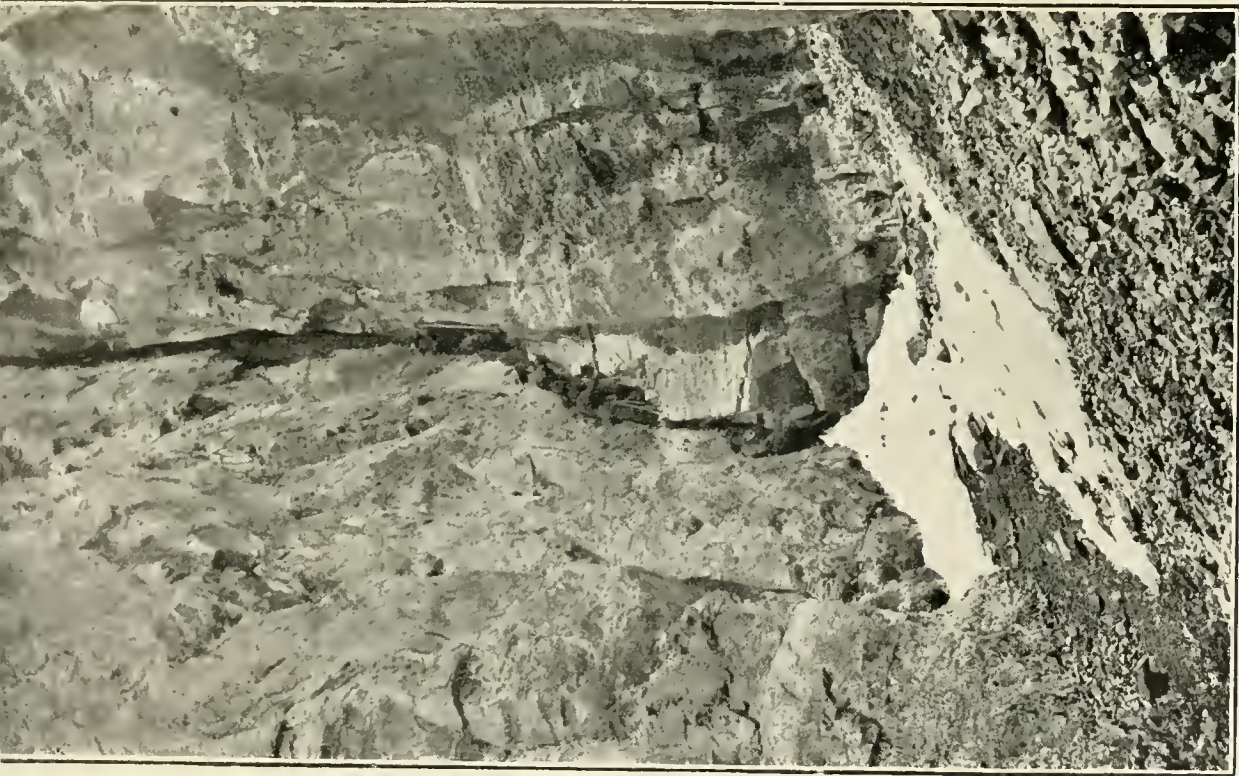
It was a most charming situation among larches, which formed a novel and agreeable feature of the landscape, after the usual small pines and spruces. We were protected in all quarters from the wind. As this was not the side however from which the mountain could be climbed, we intended to push on from here the same night and begin the ascent from Prospectors' Valley on the other side of Deltaform. We were anxious not to lose another day lest a break in the weather should occur, which at this time of year is almost certain to be serious in higher mountain altitudes. An additional

reason for not losing any time was my desire to climb the mountain on the sixth anniversary of its first ascent, September 1, 1903.

By the time that we had put up our tent and had supped in luxury, as Canadian mountaineering fare goes, it was necessary to snatch a few hours rest and sleep before rising again at 11.30 p.m. The successful execution of our plans depended on the help of the moon, which was then full, in our preliminary scramble over Wenkchemna Pass. We were not disappointed in our calculations. None of the party could recall more brilliant moonlight than that of August 31st and September 1st, 1909. The cool night air after a very warm day stimulated physical action, and rendered exercise under unusual conditions both agreeable and interesting.

Leaving our camp, about 7,000 feet above sea-level, at 12.45 a.m. we ascended partly by rock and partly by snow to the summit of Wenkchemna Pass (about 8,100 feet), which separates the shoulder of Mount Hungabee from Neptuak, the adjoining peak to Deltaform. Descending sharply for fully 1,000 feet we skirted the base of Neptuak, crossing over huge boulders and a great deal of scree, and pushing on at an easy but steady pace, reached the base of Deltaform about 5 o'clock. We were now, as it seemed to us, in the centre of the mountain's base, and opposite to a long broad snow couloir which, starting from a moraine immediately above us, appeared to offer a way of ascent; the first, and so far as we could see afterwards, the only route which presented itself. As the light was still too dim, however, to warrant us beginning the climb, for we could not see where the couloir ended or led to, and as none of us had ever previously examined the mountain from this side, we awaited the assistance of the sun, and in the meantime took a short nap.

About 5.45 we started for the moraine at the head of which we roped and entered the couloir, where the hard snow with underlayers of ice involved some step-cutting. Ascending partly by the couloir but more often by the rocks on its sides, which operation required a few speedy traverses in order to minimize the danger from falling stones, we came upon some very steep but not particularly difficult ledges. The first real difficulty was encountered after three hours of steady climbing, and just as we were beginning to wonder whether the character of the mountain had completely changed in the six years, since it had been first ascended. It consisted of a chimney about forty feet in length, with very few good foot or hand holds, and filled, moreover, with loose stones. The two guides were ahead and I was last on the rope. Aemmer, who entered the chimney first and had cleared away most of the rubbish, was well towards its top and waiting for Feuz to follow when, although exercising great caution, he dislodged a good-sized stone, which, crashing down, inflicted a severe wound on the back of Feuz's head. Fortunately I was standing on a ledge at the side and was out of the line of danger. Blood poured down over Feuz's face and neck, and concluding that the climb was at an end I considered only how we could get down again; for Aemmer could hardly have descended the chimney without assistance. But as soon as the stunning effect of the blow had passed over, Feuz pulled himself together with wonderful grit and pluckily declared that the accident would make no difference; nor did it. We all got through the chimney without further mishap and gaining a ledge with a stream of trickling snow water, washed and bandaged Feuz's wound. About 11.15 o'clock, after surmounting some further rather steep ledges which reduced the rate of our advance, although at many places we were all able to move simultaneously, we



E. Feuz, Photo

THE CRACK, PINNACLE MT.



J. W. A. Hickson, Photo

DELTAFORM FROM SUMMIT OF MT. PINNACLE

reached a bed of shale, which we took to be the northwest *arête* of Deltaform. Here we stopped half an hour for luncheon.

The *arête* turned out to be the south-east one, opposite number Seven of the Ten Peaks. And now disappeared our vision of a quick dash for the summit, as we discovered that we were further from it than we had estimated. Dr. Eggers relates that his party fell into a similar error with regard to the remaining distance.

At first we were able to proceed fairly rapidly until a regular buttress of rock obliged us to make a long and slow traverse of its base. Altogether two hours more of hard and persistent climbing were required to cover the remaining distance from the *arête*, which vertically measured was certainly less than 1,000 feet. Frequently, almost vertical ledges were encountered, formed of sharp-pointed rocks, which made the use of gloves quite desirable. On some of these ledges streams of water spouted down over our arms and legs from the melting snow above. But the main difficulties consisted in having to make a short traverse of a steep couloir of flint-like ice to some spiky and disintegrated rocks, and in working through a short chimney higher up, which had an overhanging base and was devoid of footholds at the bottom. Standing on Feuz's shoulders, Aemmer managed to seize one or two slender handholds further up in the chimney and draw himself into it, after which he assisted Feuz who in turn helped me. On the way down I found this couloir and the last mentioned chimney the most disagreeable and trying features of the climb. On emerging from the chimney we soon reached the final *arête* which leads to the sheer pinnacle of the summit. The latter looked almost inaccessible, but Aemmer quickly perceived a way up, and in a few minutes we were on the very disintegrated top, which culminates in two pinnacles covered with smooth, white,

weather-worn limestone rocks. It was now 1.40 p.m.: so that the ascent from Prospector's Valley including an unexpected delay of half an hour had taken eight hours. The view is not nearly so magnificent as from Victoria, or even so fine, in my opinion, as from Pinnacle.

I had been eager to vary our return route by proceeding along the ridge to Neptuak and thence over this peak back to Wenkchemna Pass. This would have made an ideal finish to an otherwise most satisfactory climb. But a careful scrutiny of the *arête* showed it to be in many places tremendously sharp and deeply serrated, while elsewhere it presented smooth perpendicular slabs of rock, especially between the *arête* and the summit of Neptuak; all of which features would have caused us the most strenuous exertion, and, what was more important, rendered it quite probable that if attempted we might have to spend the night at a higher altitude than we desired. Consequently we decided to curb our ambitions.

Realizing that we had no time to lose, if we wished to get off the mountain before nightfall, we immediately set about erecting a new cairn and after a brief rest began the descent at 2.30 p.m. While proceeding cautiously, as was necessitated by the nature of the rocks, we also pushed on without delay, and our party, being in good condition, was able to make fair time. On arriving at the lower of the two more difficult chimneys, we decided to rope off, and in this safer and time-saving method were assisted by Nature, which had made provision for the purpose in the shape of a large and secure rock, right at the top of the chimney, around which a loop can be easily and securely fastened. Both this chimney and the upper one are undoubtedly easier to descend than the one described on Pinnacle. Having all got down quite comfortably by the assistance of the rope, I suggested to the guides that we should not

stop for refreshment until we had passed the moraine and reached the tree-line. To this proposal they cheerfully consented. After more than another hour of steady descent we came to the long *coulair* of snow by which we had commenced the ascent. It was now in fairly good condition, the snow having been softened by the sun; so that we could leave the rocks and descend much more rapidly by it. Shortly after 8 o'clock we left the snow and could dispense with the rope, which had bound us together during more than thirteen hours of adventurous companionship. Speedily descending the moraine and hurrying down some rough grassy slopes, we found ourselves, half an hour later near the stream in Prospector's Valley where, after lighting a fire and finishing the remainder of our provisions, we awaited the moon. The complete descent had occupied about six and a quarter hours. About 11 p.m. we commenced the return trip around the base of Neptuak and across Wenkchemna Pass. We reached our camp again, all extremely sleepy, shortly after 3 a.m., after an absence of over twenty-six hours. We had been favored by fine weather conditions throughout.

Without having ever reconnoitered or having even been in Prospector's Valley previously, from which the only approachable side of Deltaform can be thoroughly examined, the guides showed practically unerring judgment in choosing the route of ascent which, as far as the south east *arête*, is, doubtless, that followed by Professor Parker and Dr. Eggers. From here it is possible that our route diverged slightly from their's, although after reading Professor Parker's account in "*Appalachia*," on my return home, I am not wholly convinced that it did. Either this, however, or the condition in which they found the mountain was not so favorable as on the occasion of our ascent. The latter supposition appears from Professor Parker's account the more probable. And

it is further supported by the fact that his party, who were all splendid rock climbers, took over six hours longer than we did for the complete ascent and descent, although they set out from a camp in Prospector's Valley about 4,000 feet below the summit.* Starting at 6 a.m. they did not reach the summit till 4 p.m. and coming down in the dark were overtaken by bad weather, so that the descent required nearly eleven hours. Of course, it is to be remembered that their party consisted of four persons, whereas we had only three, an ideal number on such a climb as Deltaform, which under any conditions will always remain a first class test of alpine work. While a more strenuous climb than Pinnacle, because of its greater height, and relatively greater inaccessibility, it is neither more difficult nor more dangerous. Indeed, I felt our position to be more precarious on the upper faces of Pinnacle than anywhere on Deltaform; and this, I believe, was also the feeling of the guides.

* Additional confirmation of this conjecture is contained in the independent description of the climb by Dr. Eggers, in Mr. W. D. Wilcox's "The Rockies of Canada," 3rd ed., 1909. pp. 251-257, which I only recently read. The "Solemn and unenthusiastic party" that reached the summit evidently encountered more ice work than we did. This may be partly accounted for by supposing that they proceeded *up* the higher *coulloir* of ice, the crossing of which we found a trying bit of work.

FIRST ASCENT OF THE NORTH TOWER OF
MOUNT GOODSIR.

BY J. P. FORDE.

The two main towers of Mt. Goodsir had long been gazed at with envious eyes by the few real mountaineers who had visited the Canadian Rockies in the early days of climbing in these mountains, but, so far as is known, no attempt to ascend either of them had ever been made before 1901, when Fay, Outram and Scattergood, with Guide Christian Häsler, made an attempt to climb the South Tower. Owing to the very unfavorable conditions which existed on the mountain at the time this attempt was unsuccessful. In 1903 Fay and Parker, with Guides Christian and Hans Kaufmann, were successful in reaching the summit, and those who have not already done so are advised to read Fay's very interesting account of these climbs, published in the 1907 volume of the Canadian Alpine Journal.

In 1903 the ascent of the North Tower was attempted by Dr. August Eggers, of Grand Forks, N.D., accompanied by the same guides, but a severe snowstorm stopped their progress when they had reached a point estimated to have been within 1,000 or 1,200 feet of the summit. This party had considerable difficulty in regaining their camp that night, but finally succeeded in doing so long after darkness had fallen.

The North Tower remained a virgin peak until the summer of 1909, although a number of climbers have had designs upon it. Why it should have been neglected for so long is a mystery. It is a peak to tempt the most ambitious climber, and its altitude, 11,555 feet,

places it among the highest of the peaks south of the railway line. As seen from the railway looking up Otter-tail Creek, it is most forbidding looking, with its bare, precipitous side actually overhanging Goodsir Creek Valley, but this would prove an attraction, rather than a deterrant, to the class of Alpinists who climb in these mountains now, and besides, all mountaineers know that if a mountain cannot be climbed from the known side it is always possible to make the ascent from some other (unseen and unknown) side, so that the uninviting easterly face certainly cannot have been the reason for the peak having remained unscaled for so long. Whatever the reason was, however, the fact remains, as mentioned above, that until August, 1909, no ascent had been made.

After the 1909 camp of the Alpine Club of Canada had broken up, much to the regret of all who were so lucky as to have been present at it, and the Club's English visitors had been well started on their trip through the Yoho valley region, P. D. McTavish and myself were fortunate enough to receive an invitation to join a party which was about to make a trip into the Ice River Valley, an unknown country to us, and one which we had been anxious to visit for years. Most of the members of this party were going into the valley on a pleasure trip, pure and simple, but Dr. Eggers, who, as already mentioned, had made an attempt on the North Tower in 1903, and who had made a number of other big climbs in the region, notably the first ascents of Mts. Deltaform and Biddle, intended again trying the peak, and for this reason was taking Guide Ed. Feuz, Sr., with him. He was so kind as to invite McTavish and myself to join him on the climb, an invitation we were slow to accept, as we considered that the first climb should belong solely to the gentleman who had already tried it and who had only failed on account of the opposition of the elements.

In addition to this I had another and private reason which I would not have cared to admit at the time, but which was that I had already spent the two previous weeks in a decidedly strenuous manner and the thought of a week to be spent in pure idling was most attractive to me. We, therefore, did not make any decision at the time, nor until we had reached our main camping ground at the foot of the mountain. As Dr. Eggers was good enough to renew his invitation then we gladly accepted, and it was arranged to make the attempt on the following day. The same afternoon Dr. Eggers and Feuz did some reconnoitering with a view to choosing the route for the climb, whilst I recuperated by wading through muskegs and fording streams in a vain attempt to get some trout for the evening meal.

The following morning, August 16th, was fine, with cloudy skies, a condition which lasted all day, and the weather generally was all that we could desire, as the clouds promised a cool day for climbing, and the slight mists on the summit would, we promised ourselves, clear away before our arrival. We were camped on the Ice River, immediately at the base of the mountain, at an elevation of about 5,100 feet, according to Wheeler's map of the valley, and had, therefore, a very short walk before beginning the ascent. We left camp at 5.08 a.m., crossed the meadow on which our camp lay, and took our way up the bed of the stream coming down from the north-west face of the peak. A tramp up the creek bed, crossing and re-crossing the stream as the walking seemed most desirable on one side or the other, brought us to the foot of the rocks at 7 o'clock. The only incident on the way up was a meeting with a fine, black bear, which was coming down the stream on the lookout for an early breakfast. Unfortunately he refused to come close enough to allow us to get a photograph of him in the dull light.

As soon as we reached the rocks, at an elevation of 6,800 feet, we began a southerly traverse across the westerly face of the peak, gradually ascending on some of the rottenest rock I have ever been on. Whilst making this traverse we had the pleasure of watching an old goat and her kid keeping out of our way, and I am much mistaken if I was the only member of the party who felt jealous of the ease with which they did so. At 10 o'clock we had reached the long southwesterly ridge which runs down to the Ice River and saw, to our disgust, that we would have saved ourselves a long, arduous climb if we had taken to this ridge as soon as possible after leaving camp. However, we comforted ourselves with the thought that if we failed that day we would know better next time. During our second breakfast which we had on reaching the ridge, our spirits were considerably dampened by finding that Dr. Eggers was in anything but good condition for climbing, he being unable to eat anything and being out of condition generally. But, with the real mountaineering spirit, he would not think of giving up, though he expressed himself as being very doubtful of reaching the summit, and kept on after breakfast with the intention of succeeding if such a thing was possible. We held to the ridge already mentioned until forced to leave it by perpendicular bluffs, and then traversed a long rock slide on the south side of the peak, at the top of which we reached another ridge immediately overhanging the valley between the North and South Towers. Whilst ascending the slide to the ridge a large rock was started by one of the party and slid rapidly down, passing over our rope. Nothing was thought of this until some time afterwards, when it was noticed that the rope had been cut, and a close examination showed that it was hanging by one strand only. Very fortunately, no strain had been put on it in the meantime. The ascent of this ridge, sometimes



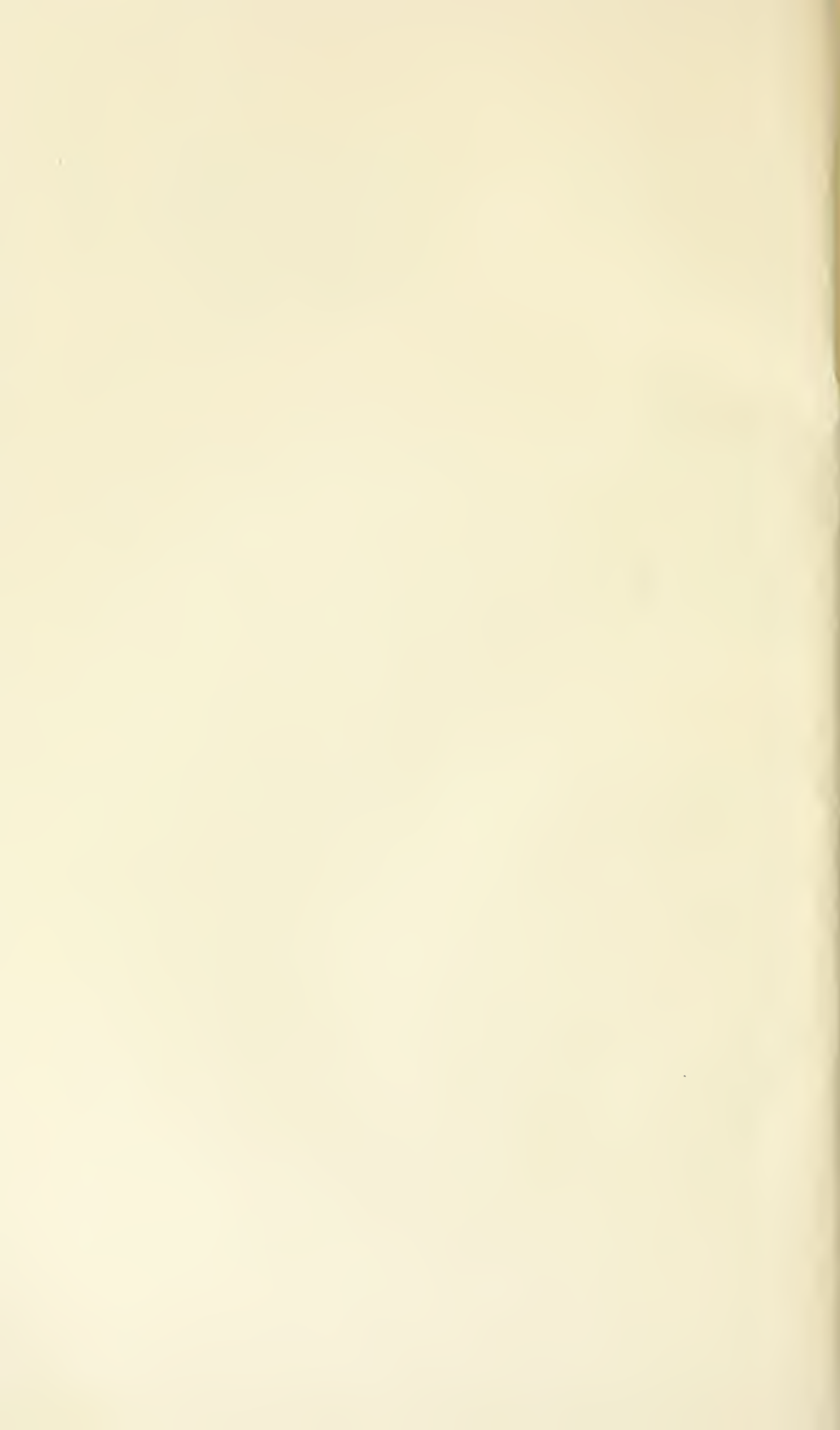
A. O. Wheeler, Photo

NORTH TOWER OF GOODSIR
From Ice River Valley



M. P. Bridgland, Photo

THE TOWERS OF GOODSIR
From Ottertail Valley



on the *arête* and sometimes across one or other of the faces, brought us, at 2 p.m., to the base of the Tower, at an elevation of about 10,300 feet. At this point, Dr. Eggers, who had several times hinted that he was not in a fit condition to continue the ascent, decided that he would not be wise in going any further. A consultation was held, the other members of the party wishing to postpone the ascent until such time as our companion, who was also the leader of the expedition, would be in proper condition to make another attempt, but he absolutely refused to consider this and insisted on our proceeding with his guide and allowing him to await our return where he then was. A eulogy of Dr. Eggers is entirely unnecessary here, but those who read this account can form some opinion of what his disappointment must have been under the circumstances, and will appreciate the generosity of his action in thus handing over to others a first ascent which would, under ordinary circumstances, have been his alone. However he certainly acted wisely in giving up the attempt when he did, as some of the hardest work was still ahead of us. To make a success of a severe climb nourishment of some kind is very necessary, and unfortunately he was unable to take any.

Leaving him in a good place, from which he would be able to watch us for some time, and leaving our rucksacks and all impedimenta but ice axes and spare ropes, we left the ridge and traversed the base of the Tower along the upper leg of the V of snow which can be so distinctly seen from the Ice River Valley during the summer months. This traverse was very steep sidehill work, chiefly along narrow ledges covered with scree or soft snow, and required very careful work. The end of this leg brought us to the foot of a snow-filled couloir, where we got our first water since 7 o'clock. The snow in the couloir was very hard and an ascent of it would

have necessitated the cutting of steps so, as we found the rock on the right hand side of it to be ideal for climbing, we took our way up it. We made very good progress for about 350 feet, when it became evident that it would be necessary to leave the good rock and cross the couloir in order to reach the summit, as the course we were then on would have taken us to the foot of an inaccessible bluff. This we did with much regret, as it was the only part of the climb where we had firm hand or foot holds or where the climbing was comparatively safe. After reaching the left-hand side of the couloir on steps cut in the snow the traveling was very steep and, as the dip of the rock was downwards at the surface and the rock was very loose, the greatest care was required. By taking a zigzag course up the slope, and taking advantage of every possible hold, sometimes on rock, sometimes on ledges covered with scree and often on patches of snow-covered ice in which steps had to be cut, we made the ascent of the last difficult piece and arrived on a small snow-field. By a tramp of about 100 yards up this we reached the summit.

Unfortunately, forest fires had been burning for some time, somewhat obscuring the view of the more distant peaks and making it impossible to obtain any photographs, but the panorama of the nearer peaks in the main range was enough to have repaid us many times over for our exertions.

As it was now after 4 p.m. and we had a long descent to make to camp only enough time was spent on the summit to build a small cairn and enjoy the view for a few minutes, and the return was begun at 4.15 o'clock. The upward route was followed until Dr. Eggers was rejoined, and, while the great disappointment of our day was that he was not with us at the summit, his great pleasure on the climb appeared to be that he should have been the first to have a chance to congratulate us on our

success. It was now 6.30 p.m., we were at an elevation of considerably over 10,000 feet and, as darkness was already beginning to show, no time was spent in talking, but a start made at once for the valley. We decided to follow the southwesterly ridge as far as possible, and hoped to be able to reach far enough down it to get to timber line and then take down one of the numerous part of which we could reach camp by lantern light. avalanche tracks into the Ice River Valley, from any

With this in view we continued the descent until about 10 p.m., having been moving for about two hours in almost complete darkness. Several times we had gone over "jumping off" places on the ridge, not knowing whether we were going down four feet or forty, but, as we were still roped, the danger was not so great as might be imagined. Yet, when we came to a place where we could see no means of proceeding farther down the ridge we decided, after trying two or three different routes, to spend the remaining hours of darkness where we then were. We found a small ledge under an overhanging rock, which served somewhat to keep the wind off us. On this ledge, which was too small to permit of our lying down comfortably, and on which we did not dare to sleep, we stayed, huddled together for warmth, until 3.30 a.m., at an elevation of about 8,500 feet. Below us, in the valley we could see the camp fire burning, and only the risk of a nasty accident kept us from trying to make our way to it. If we had had water we would have been fairly comfortable, for the night was not extremely cold, but, as we had neither fire nor water and did not care to eat anything without a drink of some kind to accompany it, we spent the night in trying to find soft places in the rock and in slapping our hands and kicking our feet together in an attempt to keep warm. Seldom, if ever, has dawn been watched for more closely, in the Ice River Valley, and at the first

appearance of greyness in the sky we were on our way down again. Daylight showed us that we had done well to stay where we did, for we still had some interesting rock work to do before reaching the valley. As soon as we were on the move our troubles began to fade away, and by the time water was reached and our thirst quenched they were entirely forgotten.

After a long drink McTavish and I took a short and steep way to camp which we reached at 6.30 a.m., after having been over twenty-five hours on the mountain. Our desire to reach camp was not on our own account at all, but to relieve the anxiety of our friends, whom we had pictured as sitting up around the fire all night, talking, with bated breath and white, drawn faces, of what terrible sufferings we must be enduring, and our disgust may be imagined when we found them sleeping, and to add insult to injury, snoring most heartily. However, they were all very glad to see us back, and to know that another of the now very few unclimbed peaks of note in the better known portion of the Rockies had been struck off the list. As soon as we reached camp one of the guides started off with horses for Dr. Eggers and Feuz, who rode in, ready for breakfast, about 8.30 a.m.

It might not be out of place to mention here that if we had not made the first ascent just when we did we would not have had another chance, as Messrs. Goddard, of Berkeley, Cal., and Richardson, of New York, both old, experienced climbers, with Guide Rudolph Aemmer, arrived at our camp about two hours after our return from the climb, with the intention of climbing the peak, and found, much to their disappointment, that through the generosity and unselfishness of Dr. Eggers, we had been enabled to get there before them. Mr. Goddard and I had been together a few days previously on the second climb of Mt. Biddle, and still later he was one of a party I had taken up Mt. Victoria by the hitherto

unclimbed south route, and I, therefore, knew enough of his ability as a mountaineer to feel sure that the only reason that he did not make the first ascent was because he was a day or so late. In proof of this I may say that his party made the second ascent of the peak two days after we had first set foot on its summit.

The climb was not a particularly exciting one, the long time taken to reach the summit being more on account of the extreme caution with which it was necessary to move than because of any difficulties encountered. The time could be very much shortened by spending the night previous to the climb at timber line in the valley between the two Towers, from where a climb of five or six hours should suffice to reach the summit. The main camp in Ice River Valley could then be reached the same evening without difficulty. Of course this time could only be made if the party was favored with the same ideal conditions both as to the weather and the state of the mountain, as we found on the day of our climb.

FURTHER BEYOND THE ASULKAN PASS.

BY E. W. D. HOLWAY.

The three who made the journeys described in this Journal (Vol. II, No. 1, 1909) met again at the Glacier House in July, 1909, full of enthusiasm and ready to carry heavy packs. As we expected to spend several weeks in the region we thought it would save time and labor to obtain the aid of a packer, so we wired to one that had been well recommended and he arrived on the first train. We showed him our pile of provisions and he selected about ninety pounds for his load and we divided the balance of the outfit, which on weighing we found to be fifty pounds each. The next morning we had the packs taken on ponies up the Asulkan Valley to the glacier, where we got under them and began climbing the steep moraine. Our man only went a few rods when he put down his pack and divided it, carrying half to the summit of the pass and then returning for the other half which he managed to get down to our first camp across the Geikie Glacier. He was so tired that supper did not interest him at all and he soon sought the tent and rolled up in his blankets. In the morning we asked him to go back after what he had left and he promised to do so. We then packed about all there was and took it up to the summit of Donkin Pass. We returned at six in the evening and found no packer in sight. Looking in the tent we saw that his blankets were gone and knew that he had deserted us. This left us with very little to eat as all our flour and sugar was at the summit of the two passes. In the morning there was nothing for us to do but climb up to the Asulkan and bring down the

forsaken load. We were not making very flattering remarks about the packer but upon reaching the place we found a message scratched on a stone at which we laughed so heartily that we forgave him. It was:

“Gone back
The clim is to
Much for me.”

We eventually got everything over the Donkin Pass and down to our old camping place on the south side of Mitre Creek opposite the falls. There is no more delightful place for a camp in the mountains. A fine spring, dry wood enough for many years and magnificent views. The valley drops rapidly to the west and the sunsets and cloud effects over the snow-covered peaks were glorious. All around us were unclimbed peaks and beyond the Purity Range was an unknown country. All of it was “our country,” with not a tourist within miles nor even a climber to get ahead of us. What more could be asked? As soon as we were rested we made

THE FIRST ASCENT OF MT. KILPATRICK
(10,624 FEET.)

Crossing the Bishops Range we ascended the Black Glacier to where it comes tumbling down the side of Kilpatrick, where we put on the rope. We selected a route leading to the left of the rocky peak projecting through the ice near the col. The snow was in good condition and we arrived at the bergschrund without difficulty and soon found a way over and on to the arête, which we followed to the summit. The views of Mt. Purity and Mt. Wheeler were particularly noteworthy. The wind blew hard and in a temperature of 36° it was difficult to keep warm, so we soon left our records and returned by the same route. Our next expedition was the climbing of Mt. Dawson from the south.

MT. DAWSON.

We had in climbing Mt. Selwyn last year followed the regular route up Dawson nearly to the summit, so we preferred to find a new way. We therefore followed up the Bishops Glacier to where a broad debris-covered slope comes down. Upon reaching the large comparatively level top of this we turned to the left over steep snow slopes and rocks to the east end of the arête, which was then followed to the summit. Here we built a new stone man near the old one. Returning we went down the longest and steepest snow slopes with our faces to the mountain, a slow but safe method. We now felt we were ready for the finest climb of all.

FIRST ASCENT OF AUGUSTINE PEAK
(10,762 FEET)

We went over to the Black Glacier and followed this up, keeping to our left, until under the first ice-fall, where we went up a steep clay bank and reached the rocks above this fall. From here we followed along the ledges, going up at every opportunity, mostly over rocks but occasionally crossing some ice or snow in the gullies until we reached the final arête at the eastern end. This we found to be extremely narrow, dropping for a great distance on both sides, and quite sensational in places, great gaps occurring, down which we had to climb and then up on the other side. In one of these we had to leave our spare rope to get back by. Finally the last gap was gotten over and we stood upon the summit looking across at our last year's stone man on Cyprian Peak and much elated at our success. First ascents are naturally reported as difficult. We do not make this claim, but having climbed Sir Donald, Dawson and Tupper we do say that Augustine is the best of all. The ascent of the rocks to the arête is interesting, and the



E. W. D. Holway, Photo

LOOKING DOWN BATTLE CREEK
From Above Our Camp



[*F. K. Butters, Photo*

FOOT OF BATTLE GLACIERS

long narrow arête is far more impressive than anything that we have seen. The summit can also be reached by the way of the Bishops Glacier, a longer route over steep glaciers and snow, but which will certainly be interesting. We returned by the same route except that we went on the glacier above the ice-fall.

We now began to think of the Battle Range and returned to the Glacier House to add a few things to our food supply. After a little rest we took up our packs and found ourselves again in the Mitre Creek camp. One morning we loaded up with camp outfit and six days' provisions and left to make a new pass, which might be called Battle Creek Pass,* at the head of the second glacier to the east of Mt. Purity. It is the lowest pass in the Purity Range, 8,700 feet, and as we had previously ascertained, the only one available for taking packs over.

BATTLE CREEK

We crossed the Bishops Range as usual, then went directly across the Black Glacier and up the glacier coming down from our pass. Arriving at the col we looked down upon a finer valley than the Yoho, a scene of savage grandeur unequalled in all the region. No one had ever crossed the range and we knew not what difficulties we should meet with in descending the great ice-fall, two thousand feet high, which dropped beneath us so rapidly that only a little of it could be seen. On the right, beginning with Mt. Purity, great glaciers covered the mountain sides as far as we could see; on the left were the fine snow-clad peaks, Grand Mt. and Sugar Loaf; below the ice-fall the Battle glaciers with

* It is suggested, as an amendment, that this pass across the Purity Range might be named "Purity Pass," and that at the westerly bend of Battle Creek, leading to Duncan River Valley, "Battle Pass."—Editor.

a great medial moraine filled the valley, and where it turned to the west there towered for more than 7,000 feet above the creek a splendid unnamed mountain terminating in a sharp rock peak; glaciers were everywhere and many streams tumbled and rushed down the steep slopes.

Descending a snow slope and keeping well to the left we reached a lateral moraine and followed this to the comparatively level glacier below the ice-fall. The medial moraine, some distance further on, is remarkably large, fifty feet or more high and wide and level on top. We reached the tongue of the glacier just about dark and were resting on the rocks when up came a yearling silver-tip, the most beautiful bear that we had ever seen. He stopped short, and after we had gazed at each other a few minutes we stood up and the bear rushed down the valley. We followed and ten minutes later, looking up the side of the valley, a little distance above us, we saw an enormous grizzly with a cute little cub. The "boys" affirmed that she was as large as a cow! The cub was getting lessons in snow work for the old bear jumped up a snow bank several feet high and the little fellow after trying in vain to follow her had to seek a lower place. Just then the mother seemed to smell us for she kept looking around and lifting her nose in the air. A shout finally caused her to turn, walk towards us and inspect us. She soon concluded that we were harmless and went on her way, which happened to be down the valley, in the direction that we had to go, although above us. It was nearly dark, and we were almost starved so we struck out at a lively gait. In fact no such pace had ever been set by the party before. Of course the bears had nothing to do with it! Getting down the tongue of the glacier was bad enough going but from there on it was the bottom of a Selkirk Valley and only those who have been there can appreciate that. Drewry, who was

some miles below in the lower part of Battle Creek says: "I had travelled through some rough country but that into which we then entered exceeded anything I had ever imagined to exist in Canada."

We keep to the left of the Creek, forcing our way through alders and tangled jungles filled with boulders over which we continually stumbled. It was quite dark when we crossed a tributary stream and saw some dry wood scattered about on the stones. It was a poor camp but we finally cut out a place in the alders for the tent and soon had pea soup, bacon and tea. The next morning we moved the tent to an open place on the bank of Battle Creek, which we found to be at an elevation of 4,200 feet, 700 feet below the tongue of the glacier. Above us to the east was a fine Matterhorn-like peak and a glacier from Sugar Loaf Mt. The stream that we had crossed came roaring down for hundreds of feet from a fine hanging valley leading up to a glacier on Grand Mt. The Sugar Loaf Glacier proved to be very interesting. It is fed from a hanging glacier enormously thick where it breaks through a narrow opening in the cliffs. The névé back of it is large, so that there is remarkable activity. During the day that we were climbing near it loud reports from the cracking and the thunder of the falling ice were almost constant.

Unfortunately there were daily storms and we found it impossible to climb the high peaks. After waiting several days we were obliged to leave, and as the rain and hail continued we kept for a time under the shelter of big stones on the glacier. This made us late and we crossed the Bishops Range after dark in mist and rain. It looked like home when we found the tent at half past nine. When the weather cleared we climbed Mt. Purity, partly by the route of the first ascent, finding the old camp on the western slopes of the mountain. We followed up the glacier to the débris-covered

slopes between the two peaks, then crossed the snow to the right until the rocky arête was reached and thence to the summit. High clouds were in every direction, adding greatly to the splendor of the views and to the beauty of a fine series of photographs obtained.

When we returned to the Glacier House we made the ascent of Eagle Peak, Terminal Peak and Mt. Tupper, the last the first ascent without guides, and Mr. Palmer left for the East. After some days Mr. Butters and the writer went to the coast and made the ascent of Mt. Rainier by the usual Gibraltar route. The trip from Paradise Valley was made in ten hours and the return in four and a half hours. We found no ice and the climb although long was very easy. Returning to the Glacier House we made the ascent of both peaks of Avalanche Mt. for photographic work, and our season was over.

Members of the Alpine Club should certainly arrange to see the country beyond the Asulkan, the finest by far that the writer has found in many years of tramping in the Rockies and Selkirks. Those who have seen the Dawson Range from the Asulkan Pass have gained a slight idea of what there is. It is still more wonderful beyond. The Battle Creek Valley has only been glanced at. It is very low, our aneroids showing 3,500 feet where the creek turns to the west and the highest peak further down must rise directly 7,800 feet from the stream. From a camp beyond Donkin Pass all the mountains in the Dawson, Bishops, and Purity Ranges can be readily reached, and they offer a greater variety of rock and glacier work than can be found together elsewhere. It is of course necessary to pack everything, but with a proper outfit and preferably three in the party it is not difficult. Glacier experience is necessary, as much of the route is over badly crevassed ice, covered with snow for most of the distance. It is worth doing. Try it.

ASCENTS IN THE CANADIAN ROCKIES.

BY VAL. A. FYNN.

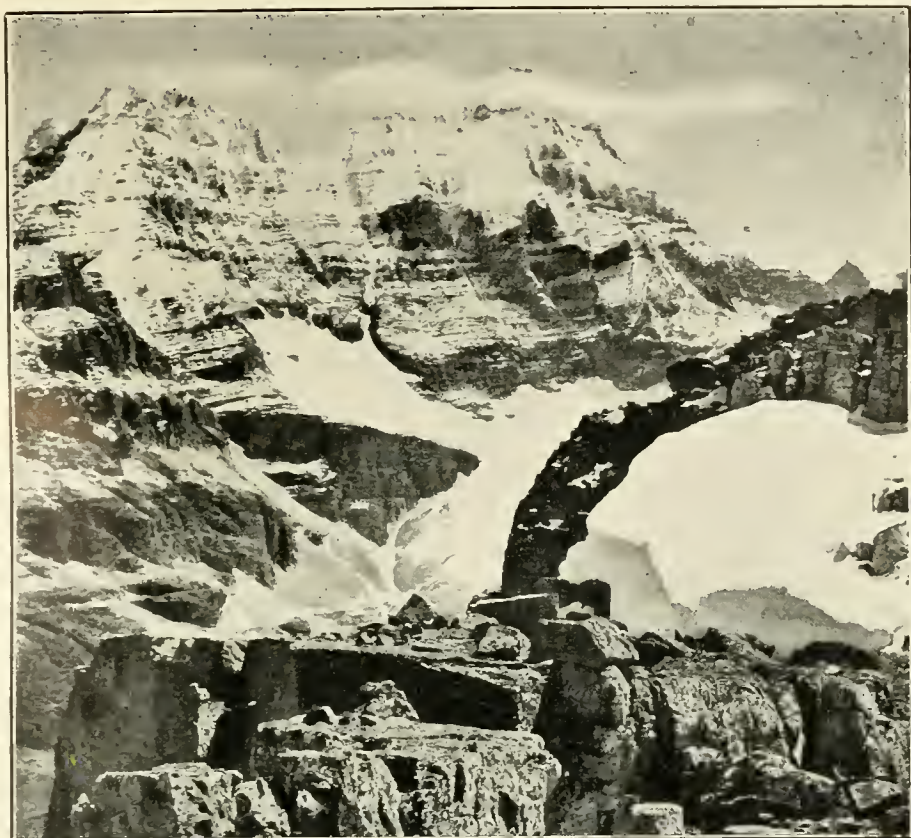
Some of the finest peaks in the Canadian Rockies can be reached from Lake O'Hara, where the official camp of the Alpine Club of Canada was pitched in the summer of 1909. Lake O'Hara can be reached in about three hours from Hector, a flag station on the C.P.R. between Laggan and Field. An easy trail leads up the Cataract Creek, south of Hector, to the shores of the lake. East of this lake is a long ridge, the general direction of which is from N. to S. Its northernmost peak is the well-known Mt. Lefroy, then follow Glacier Peak, Ringrose, Hungabee and Peak No. 10,* after which the ridge sinks to the Wenkchemna Pass. Lake Oeesa lies at the very foot of Glacier Peak and can be reached from Lake O'Hara in about one and a half hours by a faintly marked trail. The Opabin Pass separates Hungabee from Mt. Biddle, which lies due west of the former. A well marked W. arête descends from Hungabee to the Opabin Pass and rises to the insignificant Opabin Peak just before reaching the said pass. This pass can be easily reached from Lake O'Hara in about two hours by way of the harmless Opabin Glacier. Ringrose sends out a N.W. spur culminating in Mt. Yukness which stands between Lake O'Hara and Lake Oeesa. The Opabin Pass leads into Prospectors' Valley, which opens into Vermilion River, whence the Bow River Valley and the C.P.R. are reached some six miles south of Eldon.

* The "Peak No. 10" here referred to is a shoulder of Hungabee (the Chieftain). It is inferred that the Chieftain would be one of the ten. If so the tenth would be Hungabee.—Editor.

On the East, Glacier Peak, Ringrose and Hungabee overlook the Paradise Valley with Horseshoe Glacier at its head. Glacier Peak is probably accessible from that direction, but Ringrose and Hungabee look quite hopeless from that valley. Hungabee is the most imposing of the whole group; it had been climbed once, previous to this summer by Prof. H. C. Parker with the assistance of the two Kaufmanns; the other two were virgin peaks. Mt. Lefroy has been often climbed but the writer knows nothing about Peak No. 10.

MT. HUNGABEE
(THE CHIEFTAIN)—11,447 FEET.

The S.W. face, which overlooks Prospectors Valley and extends south from the W. arête reaching down to Opabin Pass, is well seen from Opabin Peak; its average inclination is a little less than 50°. This face is broken throughout its width by three very steep pitches or walls running horizontally. The first of these pitches, at about 8,900 feet, is the highest, but also the easiest to overcome, presenting many convenient ledges and sound ribs. The second pitch at about 9,500 ft., is not so high, but it is nearly vertical and even overhangs in places; its continuity is, however, broken by a chimney usually filled with ice and snow. This chimney apparently affords the only, and not altogether safe, means of progress. The third pitch, at about 10,900 ft., is also very steep, but presents fine and reasonably safe climbing. That part of the S.W. face which lies between the first and second pitches, is furrowed by five couloirs. The first of these loses itself in the W. arête, at or near the second pitch; the second is the widest and runs clear up to the main or N. arête of the peak, ending near the summit on the well marked and highest shoulder of the mountain. This couloir breaks through the second pitch at the ice chimney previously referred to and also cuts a broad,



M. P. Bridgland, Photo

HUNGABEE AND RINGROSE
From Schaffer



V. A. Fynn, Photo

NORTH ARETE OF HUNGABEE
From Glacier Peak

but obviously dangerous couloir through the third pitch. The remaining three couloirs do not break through the second pitch at all, but are continued above it and lose themselves more or less quickly in the topmost part of the face, after scarring the third pitch with corresponding wide and nearly vertical chimneys. All five couloirs also run down through the first pitch. The W. arête itself cannot be followed throughout and traverses in its immediate neighborhood look very dangerous indeed, particularly so in the lower half. This mountain, like all the others in the district, is more dangerous than difficult, requiring very careful selection of a route on account of the very rotten rock.

The second ascent of Hungabee was made on August 7, 1909, by E. O. Wheeler (A.C.C.) and the writer by way of the S.W. face. Leaving the official camp of the A.C.C., near Lake O'Hara, at 2.45 a.m., the foot of the W. arête was reached by way of Opabin Pass and Opabin Peak at 6 a.m., including 30 minutes rest. Bearing south over easy and gradually narrowing horizontal ledges until near the middle of the first couloir, quick upward progress was made over steep but firm rocks until quite easy going was reached, when the couloir was rapidly traversed in order to reach a well marked ledge on its southern side just above a prominent notch in that ridge. The ridge leads directly to the foot of the ice chimney in the second pitch (6.45 a.m.) and can be followed closely affording fine climbing, or quicker progress can be made on its southern slope. North of the ice chimney appears a safe crack, but if this is followed it soon becomes necessary to leave it, to climb into the ice chimney and to traverse the latter high up. The rocks leading from the crack down into the chimney are very difficult. The chimney was found full of ice and required much step cutting; it was safely negotiated at 7.20 a.m. Much snow will make this chimney very easy,

no snow will turn it into a very hard rock climb, particularly as the rocks are sure to be always glazed in the early morning. The chimney is left as soon as a traverse south becomes possible, for the main couloir discharges all its missiles in this direction. A broad horizontal ledge now leads round a corner into a steep but quite easy couloir which is exposed to falling stones, but can be negotiated in 15 minutes when the ridge on its north side affords a safe and easy route. This ridge is somewhat broken just above the couloir, but can be picked up again somewhat higher and slightly to the right, and followed to the foot of the third pitch (8 to 8.15 a.m.). From this point, the main couloir and the gap it cuts through the third pitch are well seen directly on the left. In the direct line of ascent are difficult rocks, they can be turned by traversing the forked head of the couloir on the right (step cutting) and working up the rocks on the far side (black rock) to an inclined scree covered ledge some eight feet wide running along the foot of the main wall (yellow and greenish rock) of the third pitch. Working back, north, along the ledge, the foot of a deeply cut couloir in the main wall of this pitch was reached at 8.50 a.m. On the north side of the couloir and near the centre, are two very steep chimneys separated by very steep slabs and narrow ledges leading to the last steep slopes of the S.W. face (black and brittle rock) affording new holds (10.05 a.m.). In the direct line of ascent is seen, high up near the ridge, a crack in the black rock. This can be reached with care over some patches of snow and leads on to the main ridge some thirty feet north and a few feet below the summit, which was reached at 10.45 a.m.

The same route was taken on the return journey; the ice chimney was reached in three hours and negotiated in twenty-five minutes; a regular waterfall was now racing down the ice and some stones came down, one of

them striking Wheeler's foot and knocking him out of his steps. Opabin Pass was reached in one hour and five minutes after forty-five minutes rest, and one and a half hours later we were back in camp at 6.30 p.m.

A close examination of the main or N. arête showed that the latter will afford a splendid and much safer climb. It should be struck at its lowest point, between Ringrose and Hungabee. This point can be reached without serious difficulty from the foot of the Opabin Glacier. This first part of the climb is, however, again exposed to falling stones.

Prof. Parker climbed the mountain from a camp in Prospectors Valley, but attacked the S.W. face near Opabin Pass, the first part of his route probably coinciding with that described above, and reached the main ridge by way of the main couloir.

A first attempt made by E. O. Wheeler and the writer on July 25th, 1909, was frustrated by bad weather. On that occasion the route followed was the same, except that the third pitch was negotiated further south—just above the third couloir (connecting the main couloir as number one). The main ridge was reached some sixty feet below the summit, but this only became known to the party on the day of the successful ascent. The more direct route followed on the second attempt is the better.

RINGROSE
(10,741 FEET.)

On August 9th, 1909, E. F. Pilkington (A.C.C.) and the writer made the first ascent of this peak. The S.W. face is well seen from Opabin Glacier. The mountain shows two summits, of which the southern one is the higher and the broader. To the south of the higher summit is seen a formidable looking gendarme on the main arête which soon drops very suddenly to the lowest

point of the arête between Ringrose and Hungabee. The S.W. face is reached by way of a broad snow covered ledge which sweeps up from the Opabin Glacier and runs north, rising in the direction of the col between Ringrose and the eastern peak of Mt. Yukness. The characteristic features of the S.W. face are a first couloir descending from a point on the main ridge just south of the north summit and a second couloir descending from a point just north of the gendarme. These two couloirs converge on a point at the foot of the face. A large patch of snow covers a fairly level platform in the line of the first couloir. A little above this and about half way up the face is seen a horizontal but steep ledge; it is particularly well marked just under the lowest depression of the main arête. Another such ledge appears about the height of said lowest depression.

Leaving the camp near Lake O'Hara at 4.45 a.m. a little lake at the foot of Opabin Glacier was reached at 5.55. Continuing at 6.10 the foot of the S.W. face was reached at 7.25. The face was attacked at 7.48 a.m. at a point immediately below the highest summit. The rocks present no difficulty and many variations are, therefore, possible but a sharp lookout must be kept for falling stones.

The ribs between the two couloirs mentioned above is followed, leaving the snow patch on the left, the first ledge being easily reached just where it crosses the second couloir. At this point, and on the south side of the second couloir, is seen a steep and curved gully partly filled with snow. It runs up in the direction of the lowest depression in the main arête then turns back in the direction of the main summit. The rib which separates this curved gully from the second couloir seems to descend from the gendarme on the main arête. The second couloir looks very smooth and is certainly very dangerous. Crossing it very rapidly the rocks on its north

side are reached and afford fine, safe, climbing. The curved gully runs into a couloir filled with ice which descends from the south side of the gendarme. Crossing the curved gully at its junction with the ice couloir the rocks on the north side of the latter are followed, keeping high up and well out of harm's way until direct progress in the direction of the main arête becomes impossible without crossing the ice couloir. At this point an irregular vertical crack in a partly overhanging rock wall affords a chance to reach the crest of the rib which seems to descend from the gendarme. This is the hardest part of the climb for the rock is quite brittle. Once astride on the sharp rib it is seen that the second couloir which is now immediately on the left divides a few feet higher into two branches, the one running to the very foot of the main peak, the other away from it. Either branch is practicable but both are dangerous. Descending from the rib, the near branch of the second couloir is rapidly crossed when the main ridge can be reached by way of the buttress between the two branches. It is not until this buttress is reached that it becomes evident that the gendarme has been left on the right and that it will not stand in the way. The main arête is struck at the foot of what appears to be a vertical wall guarding the approach to the main peak from the south. This wall is, however, easily climbed (10.50 a.m.). Striding along the almost level arête in the direction of the highest point one is suddenly brought up by the most perfect "Gabel" some eight feet wide and about twenty-five feet deep with perpendicular sides. The ridge here is flat topped, from two to three feet wide. Both sides are perpendicular for some thirty or forty feet, and the ridge looks exactly like a thick wall. Loose rocks enforce great care in negotiating the "Gabel" but it is the last difficulty, and the actual summit is reached immediately after (11.45 a.m.).

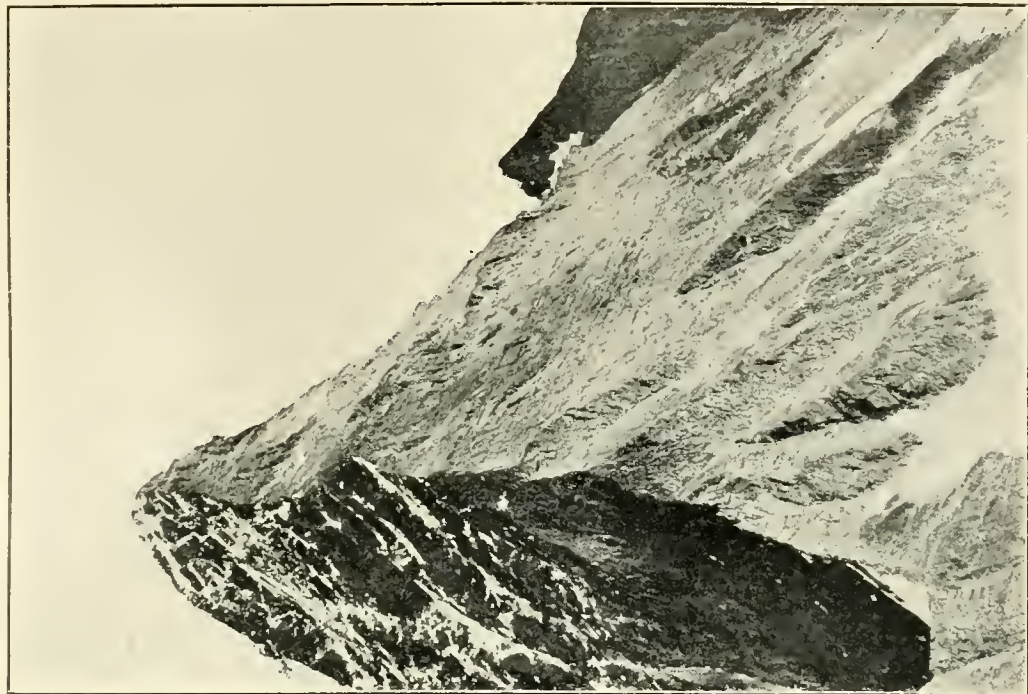
The same route was followed on the way down.

Leaving the main summit at 12.5 p.m. the "Gabel", where a rope had been left, was passed at 12.15. After building a second cairn, south of the Gabel, the difficult crack was passed at 10.15 reaching the snow at the foot of the face at 2.45 p.m. Resting near the lake from 3.5 to 3.40 camp was reached at 4.45 p.m.

It is quite possible to traverse from the south to the north peak and the north peak also seems accessible from the col between Ringrose and Yukness. We could not investigate further for we were due at Sherbrooke Lake that night but only managed to reach Hector. The lowest depression in the main ridge between Ringrose and Hungabee, from where the latter can probably be climbed, may be reached from the lower of the two horizontal ledges of the S.W. face by a horizontal traverse to the south and a scramble up some easy rocks.

GLACIER PEAK
(10,831 FEET.)

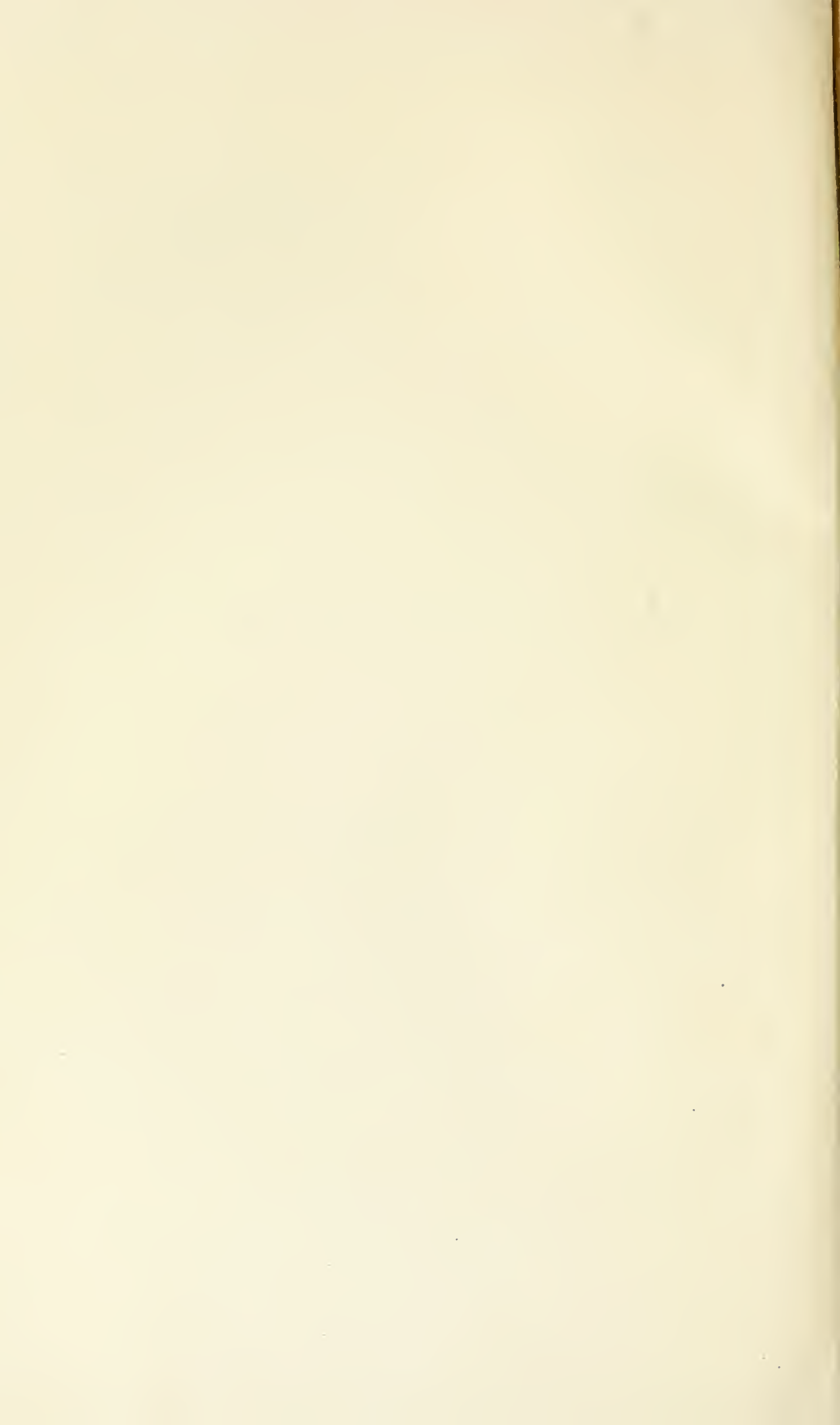
On August 4th, 1909, C. A. Richardson, A. R. Hart, L. C. Wilson, all of the A.C.C., and the writer made the first ascent of this mountain. Leaving the camp at Lake O'Hara at 8.20 a.m., Lake Oesa was reached at 9.30 and 10 minutes taken for a final survey of the peak. A direct attack is out of the question owing to two hanging glaciers which threaten the whole of N.W. face. It is probably possible to scale the rocks immediately north of the hanging glacier nearest to Mt. Lefroy and thus reach the less steep upper slopes of this glacier; said rocks appear to be frequently swept by falling stones and afford practically no cover. The only other possible line of attack lies up a deeply cut but not very steep snow filed couloir leading to a gap in the main ridge between Ringrose and Glacier Peak. This couloir is not threatened by either hanging glacier and affords an easy and tolerably safe point of attack. It is best to keep close to



Howard Palmer, Photo
N. W. ARETE OF MT. SIR DONALD
From Eagle Pk.



F. W. Freeborn, Photo
GLACIER PEAK



the very steep rock walls on its north side; they afford good protection. Going up some screes and a small glacier the bergschrund was soon reached and easily passed. From 11 to 11:20 was devoted to lunch in a protected spot well up in the couloir. At 12.15 came the first easy opportunity to take to the rocks on the north side; at this point, which is quite close to the gap, a broad ledge covered with loose stones runs horizontally into the couloir. A traverse north looks tempting but is not advisable. Near the main ridge and running nearly parallel to it is seen the mouth of a steep narrow and ice filled couloir; keeping on its north side and as high up as practicable fair progress is made over extremely rotten rocks requiring the greatest care. It soon becomes possible to reach the crest of the rib on the north side of said couloir; this affords much greater safety. The general line of ascent from this point is a rapidly rising one, bearing but slightly north. The main ridge was reached at 1.15 p.m. without special difficulty and very soon afterwards the party stood at the foot of the peak itself after having turned the last rocks of the main arête on the north over an ice slope covered with about one half-inch of hard snow closely adhering to the ice. Traversing to the faintly marked S.W. ridge of the last peak, which looks like a pyramid of rock rising out of the snow and ice, the cornice crowned summit was easily reached at 2 p.m. It is just possible that this peak can be reached from Paradise Valley. The upper parts of the east face appeared easy; it was, however, not possible to see the lower portions. Hungabee and Ringrose look very imposing from the summit but still more so from the point where the main ridge was struck. Leaving the summit at 3 p.m. and following the same route at a leisurely pace, the top of the couloir was reached at 4.30, the bergschrund at 5.10, Oeesa Lake at 5.35 and camp at 6.55 p.m.

PARK MOUNTAIN
(9,671 FEET)

From Lake O'Hara Camp to McArthur Lake one hour fifteen minutes. The simplest way to reach Park Mountain from here is to make for the lowest depression in the ridge between Park Mountain and Mt. Biddle, and then follow the scree arête to summit. The lowest depression in this ridge is reached by a steep rock and snow couloir in its N.E. face. It is easily seen from north end of lake.

On July 22nd, 1909, the writer went up the N.E. face itself. The first rock buttress is overcome by means of a couloir close to the north end of lake—then up steep snow slopes to foot of rock rib descending from the apparent summit. Follow this rib gradually bearing west and reach the north ridge near summit—complete ascent by west side of north ridge—rocks rotten and fairly difficult. The real summit is a long, nearly horizontal, ridge east of the apparent summit. Three hours from lake shore. Descending follow the south arête and then strike west down to McArthur Creek traversing north wherever possible, so as not to lose too much in height. No difficulty on this side but very rotten rocks. The stream at foot of McArthur Pass is reached in two hours twenty minutes.

MT. SIR DONALD—SELKIRK RANGE, B.C.

BY THE N.W.W. ARETE

(10,808 FEET)

This arête referred to as the north arête in the "Selkirk Range, B.C." and is the one joining Sir Donald to Uto Peak. It was first climbed in 1902 by Mr. E. Tewes with the guides E. Feuz senior and Chas. Bohren. On August 18th, 1909, A. M. Bartleet (A.C., A.C.C.) and V. A. Fynn (S.A.C.Uto, A.A.C.Z., A.C.C.) climbed the

mountain by this arête, descending by the ordinary route. The weather was perfect, the rocks dry. Left Glacier House at 3.15 a.m. reaching south of Vaux Glacier at 5.05. Followed ordinary route to the top of right hand (north) moraine, then took to grass slopes at foot of S.W. face of peak, traversing to col between Sir Donald and Uto Peak. Reached col at 6.40 a.m. and summit at 11.25 a.m. The arête was followed as closely as possible, difficulties being mostly avoided by taking to the N.E. face until near the summit, when an easy traverse on the left hand face is clearly indicated. The rocks are steep but afford plenty of holds. Some care is required as a number of boulders are loose; apart from this the climb is absolutely safe and cannot be considered difficult in favorable conditions. Left summit at 1 p.m., reached the breakfast place at 2.50 by way of the Feuz chimney, left rocks at 3.30, reached top of north moraine at 3.50 and Glacier House at 5.20 p.m.

ON MOUNT HOOD

BY FRANK W. FREEBORN.

Mt. Hood is the scenic pride of Oregon. With its 11,225 feet of altitude it is plainly visible, in ordinarily clear weather, from Portland, fifty miles away. Even at that distance its bulk and height and whiteness and symmetrical shape are most impressive. It is one of the line of volcanic peaks that dominate the Cascade Range from Baker in Washington to Shasta in California. Though it has had no violent eruption in historic times it is still sending out steam and sulphurous fumes. Its lower slopes, to the height of 6000 feet, are overspread with forests; above that nearly all its surface is covered with glaciers.

The most convenient point from which to climb the mountain is Cloud Cap Inn on its northern side. The Inn is a long, low, log structure, built near timber line on a rocky buttress directly in front of the foot of the Eliot Glacier. The house is exceedingly well managed and comfortable; but as its attractions are well appreciated and its accommodations are limited any party larger than one should write or wire ahead for room. The address is Mt. Hood P.O., Oregon.

A railway ride of 55 miles from Portland along the south bank of the Columbia River brings one to Hood River, a bustling town with good hotels. From there it is twenty-eight miles south to Cloud Cap Inn. An automobile provided by the management of the Inn took us the first twenty-four miles. Our route lay straight up the Hood River Valley, famous for its apple orchards. Ahead of us loomed the big white mountain, its head



F. W. Freeborn, Photo

MT. HOOD FROM CLOUD CAP INN



F. W. Freeborn, Photo

THE SUMMIT OF MT. HOOD

wrapped in clouds. No rain had fallen for over six weeks and the road and all vegetation for rods on either side were buried in dust. The last four miles of the journey was made in a mountain wagon and took just two hours. It was a steep road all the way through a noble forest of spruce and fir and pine. But the powdered volcanic dust that filled the narrow road was ankle deep, and as the horses slowly wallowed through it, that part of the trip was far from comfortable. From the time we left the lower valley the woods about us and the nearer hills through which we mounted had shut out all views of Hood. But when we reached the Inn, we came face to face with the majestic, glacier-covered cone, close at hand and towering as far above us as Lefroy stands above Lake Louise or Temple above Paradise Valley. From the platform on the roof of the Inn we looked off over the country we had just traversed. Fortunately the air was clear of smoke, and in the north and northwest rose the mighty, volcanic brothers of Hood, Adams and Rainer and St. Helens.

My purpose was to climb Hood the next day with the local guide, but as the weather seemed doubtful I could make no definite arrangement. The next morning was perfect, but the guide (there is only one) would not budge. He offered sundry trumped-up excuses, but later developments showed that he was already booked for an ascent the following day and did not care to climb two days in succession. But I really lost no time, for I had a most interesting solitary tramp over the Eliot Glacier. The next day was also fine and we started at 7 o'clock. A young man named Sharp, from a near-by town, was my chance comrade and shared the attentions of the guide with me. Our route lay for a few minutes through a forested depression, and then we gradually mounted along the bare, curving ridge of Cooper's Spur that bounds the Eliot Glacier on the east. In two hours we

reached the base of the cone of Hood at an elevation of probably 8400 feet. There we roped. The method was new to me. Each man was provided with a belt of very thick heavy leather about six inches wide. To the side of this belt was attached a line of the usual size of about fifteen feet long. The end of this was made fast to a ring in the next man's belt. The contrivance was stiff and heavy and at times inconvenient; its advantage lay in the ease with which any member of the party could be detached.

Our route now lay over the glacier nearly to the summit. The snow on the glacier was in good condition but so deeply furrowed and pitted that foot-holds were treacherous and rapid progress difficult. The slope grew steeper, and after climbing an hour upon it we came to a crevasse like a bergschrund running quite across that face. At that point we found the end of a stout rope 1250 feet long hanging on the snow curtain over a convenient ice bridge. The other end of the rope was fast to a rock not far below the mountain top. But for this rope, put there by the management of the Inn, we should have had to cut many steps in the next stage of an ascent. As it was we made good use of it, and after an hour slipping and kicking in uncertain foot-holds and steadying and pulling ourselves up with our arms we reached the ledge to which the rope was anchored. Then, with ten or twelve minutes of easy climbing, we stood upon Mazama Rock, the northeast corner of the summit of Hood just four and a half hours from Cloud Cap Inn. The climb had been needlessly rapid and I was too exhausted to share a breakfast with the others. I hope to climb Hood again some day, and I shall then take at least five hours and a half and do it comfortably.

At the summit we met two men who had climbed up the other side from Government Camp. The ascent on that side is not so steep as ours had been, but it is twice as long; and Government Camp is not nearly so access-

ible from Portland as Cloud Cap Inn. If I had climbed the mountain for distant views alone I should have been disappointed. The smoke of forest fires so filled the air that no good views were to be had beyond the base of the mountain. Only in the north, fifty miles away, the ponderous glacier crown of Adams floated high in mid air, a thousand feet above the top of Hood, without any apparent support. It was a grand weird sight. But Hood itself was most interesting. Spurs of brown and black rock ran down all sides like the ribs of an umbrella; the wide spaces between them were filled with glaciers down to the tree line. A wide gash in the southwest side of the mountain ended a thousand feet below in a ragged pit from which issued clouds of steam. We judged this pit was probably the source of the sulphurous fumes that came to us on the wind as we were climbing.

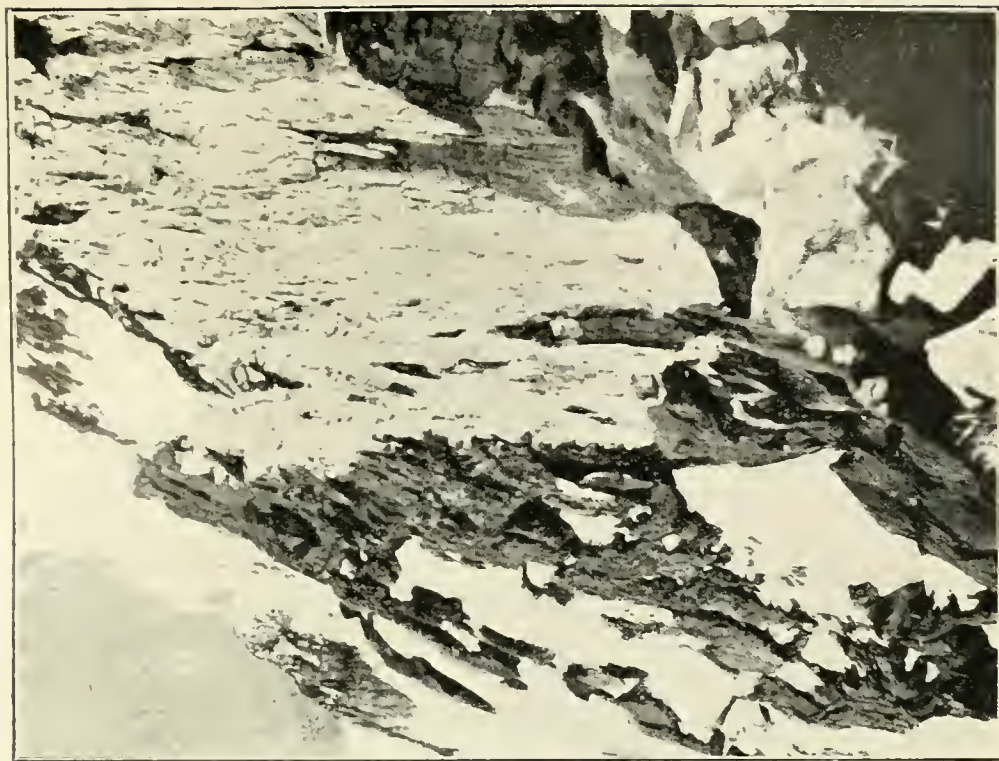
After an hour spent at the summit we began our descent, picking our way carefully down to the cliffs where the safety rope was anchored. But from the time we grasped that rope until we reached the fairly level glacier at the base of the cone, our progress was a senseless, reckless plunge down the mountain side. We covered in 45 minutes, including a stop to photograph the crescent crevasse, what we had taken 135 minutes to climb. There we unroped; and as Mr. Sharp and the guide were eager to get back to the hotel as soon as possible I gave them my blessing and bade them good-bye. They disappeared over the cliff to find a short cut, and a little later I saw them hustling along over the Eliot Glacier far below. I made my way leisurely back by the morning's route, stopping to eat my now welcome lunch, and loitering to study the mountain and enjoy the scenery. In two and a half hours after we left the summit of Hood I was at Cloud Cap Inn.

THE FIRST TRAVERSE OF MOUNT VICTORIA

BY G. W. CULVER.

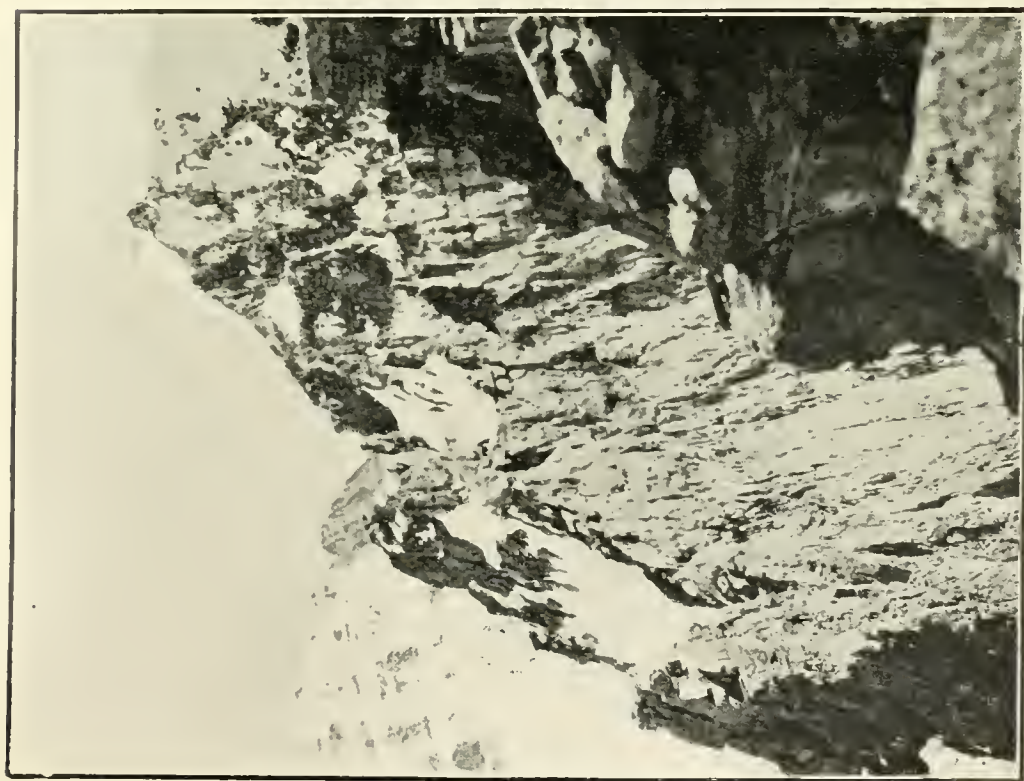
The climb that I am about to describe was made early in last September. I was then at Lake Louise for only a few days, but was fortunate enough to find both of the guides stationed there, Edward Feuz, junior, and Rudolf Aemmer, free from engagements. As a result I determined to make an attempt to traverse the Victoria Ridge, and with this intention left the Chalet, with Feuz and Aemmer, about 1 a.m. on Saturday, September 4th. The weather had caused us some anxiety on the previous evening, but at midnight it was bright and clear with every promise of so remaining.

For three hours or more we followed the customary route, first skirting the lake shore and then traversing the Moraine. We kept well to the right, however, and to about 4.30 a.m. began to ascend the bluff, grass-covered shoulder which we had been paralleling for sometime. Before long we reached the tongue of quite an extensive ice sheet which sloped upwards rather sharply. We now roped with Aemmer in the lead and Feuz bringing up the rear, an order which we preserved throughout the climb. Thanks to our crampons the glacier caused us little delay, and at 7.30 a.m. we were standing upon a shoulder of the arête itself. Here we disposed of a light meal, and then, pushing on rapidly, we reached the north peak of Mount Victoria at 10 o'clock. This peak is only slightly lower than the actual summit of Mount Victoria, and, as it was a bright day, we obtained a splendid view in all directions. From the north peak the summit itself appeared to be very close, and one of the guides esti-



W. Culver, Photo

THE VICTORIA RIDGE



G. W. Culver, Photo

THE VICTORIA RIDGE



mated—how wrongly it later devolved—that it would not take more than four or five hours to reach it.

We soon began, however, to realize that our difficulties were still before us. For two hours after leaving the north peak our progress became increasingly slower, but by 12 o'clock we had arrived at the furthest point previously reached by any party, and here we decided to stop for a second meal. We were now apparently about midway between the north peak and the summit. Where we stood the arête was broken by a deep depression, and, when, after a short rest, we again started forward, we found it necessary to lower ourselves by a sling to the level of that part of the ridge which was immediately below us. This cleft in the arête marked what was really our first difficulty, but a succession of others followed fast. It seemed almost incredible that any such saw-toothed formation could exist as the remaining part of the Victoria arête proved to be. Jagged pinnacles, or gendarmes, jutted sharply upward from the ridge in countless numbers. Some of these we surmounted; others we were forced to circle around, but always upon the left side of the face for the wall upon the right was absolutely sheer. Almost everywhere the rock was terribly treacherous. So rotten was it indeed, that time and again a projecting portion which appeared to offer a firm hold would break off at the slightest touch.

Needless to say our rate of progress was not very rapid, and between 3 o'clock and 6 o'clock it was particularly slow. I distinctly recall one hour, spent in skirting the base of a rock tower, in which each of us moved the distance of half the length of the rope only four times. By 6 o'clock, however, we had reached a part of the ridge where the rock was a great deal firmer. We were then able to advance much more quickly, and at 7 p.m. we arrived at the summit. Naturally enough it was a very brief halt that we made upon the summit, for already it

was beginning to grow dark. An hour later it became pitch black, and we were forced to stop and wait for the moon. Meanwhile, a strong wind had sprung up, and the two and a half hours that we were compelled to spend upon an exposed part of the arête were far from pleasant ones. At 10.30 p.m. the moon, then its last quarter, had begun to show over the crest of Mount Lefroy, and once more we started forward. Even now there were some slight difficulties to be encountered. The moon gave but a very dim light, and at times was entirely obscured by clouds; the wind, too, was so strong that it was not easy to keep the lanterns burning; and we were further delayed by the necessity of cutting steps whenever we descended snow slopes, for the surface of the snow was hard and icy. Consequently, it was not until 2.30 a.m. that we reached the head of Abbot Pass. Three hours later we unroped upon the moraine. There we rested for a short time, and then pushed on rapidly toward the Chalet, which we reached at 8 a.m.

There are, I think, two outstanding difficulties in the traverse which I have just described. The one consists in the great length of time which this particular climb requires. It almost inevitably entails spending a night, or at least a considerable portion of one, in some exposed position. The second difficulty and of course much the more serious one, results from the untrustworthy nature of the rock. Much of the greater portion of the Victoria Ridge which lies between the north peak and the summit is formed of rock which has so suffered through process of decay that it is absolutely crumbling away. Certain harder portions of the ridge have naturally withstood the process better than the softer ones, and hence the many towers and pinnacles already referred to. Were it not, however, for the intense rottenness of its formation, and as well, perhaps, its unusually great length, I could not conceive of a more interesting bit of mountaineering than that to be found in a traverse of the arête of Mount Victoria.

OVER THE WILSON AND DUCHESNAY PASSES.

MRS. A. H. MACCARTHY.

After the Alpine Club camp of 1909 had passed into history, a party of six members of the Club made a trip into the beautiful Ice River Valley, going in by way of the Beaverfoot River trail with horses. We had been in camp at the head of the valley for some days, and the men of the party had made a successful attempt on the long-coveted North Tower of Mt. Goodsir, on which I had longed to accompany them, even while realizing that it was beyond me.

A suggestion that we should make the return journey to Field on foot, over the intervening passes, sounded very attractive as a wind-up to my first visit to the Canadian Rockies; so, on the following morning, no others being enthusiastic enough to join us, Mr. J. P. Forde, Mr. P. D. McTavish and I, set out on our air-line trip. None of us had ever been in the region which we proposed to traverse, but we knew the general direction and started with the intention of travelling until we reached some place. We did not know how long the trip would take and, therefore, took a supply of provisions and a quilt for my use at night.

After leaving camp we followed the Ice River almost to its source, and then kept along the side of the valley leading to the ridge which Mr. Whympers had named the Wilson Pass. After a hard struggle through dense underbrush, relieved by patches of wild strawberries, raspberries and blueberries, we were forced to take to the bed of the stream, which appeared to come from near the Pass. From then until we reached the summit of the Pass, at an elevation of about 8400 feet, the travelling

was easy, though steep, as for a great part of the way we were able to follow goat trails, and in one instance followed the goats themselves, which kept just ahead of us until they apparently vanished into thin air on reaching the top of the ridge. The easterly side of the ridge overhangs a small glacier which we reached through a little chimney, and we then made our way down the glacier by steps cut in the ice. After a long descent over loose rock, and then through dense timber, we reached Goodsir Creek. It was now evident that we would not reach Field that night; so, after following the creek for some distance, we halted for the night in time to allow for gathering a good supply of firewood before dark. After a hearty supper, the cooking of which was almost as enjoyable as the supper itself, I wrapped myself warmly in the quilt and spent a most comfortable night beside the roaring fire kept on by the men, though towards morning I took my turn at tending the fire and helped to prepare breakfast.

We were off again at daylight, leaving the quilt to decorate a tree and mayhap gladden the eye of some belated traveller. The rising sun, tingeing with pink the four peaks of Mt. Goodsir, was a sight worth lingering to enjoy, but we had a long trip ahead of us and set out at a good pace to the confluence of the Ottertail River and Goodsir Creek. Here, in a few minutes, we caught some trout, and from there on saw fish in all the streams. A short trip across some lovely park-like stretches brought us to McArthur Creek about a mile above its junction with the Ottertail River, and then came the most strenuous part of the whole expedition. For hours we struggled through dense brush on the bank of the creek and across innumerable slides overgrown with alder, taking turns at breaking the trail, which in this case meant tearing the tangled limbs and brush apart so that we could force our way through them.



Mrs. A. H. MacCarthy, Photo

THE HEAD OF ICE RIVER



Mrs. A. H. MacCarthy, Photo

THE GOODSIR RIDGE
Wilson Pass

Close to the Forks of McArthur Creek we took a short rest and drank the last of our tea, and much refreshed, set out along the West Fork of the creek for the Duchesnay Pass. Shortly after lunch I was so unfortunate as to fall into a deep pool, out of which I was most unceremoniously pulled by my companions, but not before I was thoroughly soaked, making travelling very heavy for me for the rest of the day.

Late in the afternoon we reached a large amphitheatre lying between Mts. Owen, Odaray, and Duchesnay, at the head of which was a high ridge, which we fondly hoped would prove to be the Duchesnay Pass. Imagine our disgust therefore, when, after a long upward pull, the latter part of which was a hard scramble over fine slippery scree, we reached the ridge at an elevation of about 8000 ft. to see below us a drop into the valley of Boulder Creek, which lay at the foot of an utterly impassible wall of rotten rock, almost 2000 ft. high.

It was now beginning to get dark, we had still to cross the Duchesnay and Dennis Passes, the exact location of which we were ignorant of, and all my clothes were as wet as possible. As it was imperative that I should leave for the East on the following day we decided to attempt to reach Field by another route before making a retreat to timber line to spend the night, which was apparently what was before us. We therefore retraced our steps a short distance, traversed the side of the long ridge connecting Mts. Duchesnay and Odaray, and after some prospecting found a passable slope down which we managed to crawl on to the Duchesnay Glacier. We crossed the glacier and climbed to the summit of the Duchesnay Pass, from which we saw one of the finest sunsets it has ever been my good fortune to witness. We then made our way down on the west side of the Pass and traversed the steep side of a shoulder of Mt. Stephen until we reached the summit of the Dennis Pass at about

7.30. Here we caught sight of the lights in the village of Field, lying about 3000 feet below us, and only taking time to untie and coil our rope, we scrambled down the scree and rolled and slid through the burnt timber as quickly as the darkness would permit. We soon reached the creek which flows from the Mt. Stephen amphitheatre, during the crossing of which I managed to pull Mr. Forde into it, escaping myself this time, and quickly gained the trail leading to the village.

We now felt that our troubles were over, and hurried down the trail by lantern light to the hotel, which we reached at 9.30 p.m., and sat down to a much-needed and highly appreciated supper, even the remarks of the tourists in the hotel upon my costume having no effect on my appetite, which had been growing keener every minute since noon. So ended one of the most exciting and strenuous, and at the same time one of the most enjoyable experiences of our lives.

SECOND ASCENT OF MT. BIDDLE.

FIRST ASCENT MT. VICTORIA BY SOUTH
ROUTE.

BY J. P. FORDE.

The first ascent of Mt. Biddle, 10,876 feet, was made from a camp in Prospector's Valley, near the Eagle's Eyrie, in 1903. The second party to make the ascent was camped at Lake O'Hara, with the Alpine Club of Canada, in August, 1909. The party consisted of Messrs. J. Watt, J. J. Trorey, M. Goddard and J. P. Forde, with Guide Gottfried Feuz.

The start from the camp was made at 6 o'clock and the trail followed to the west end of Lake McArthur. The south bank of the lake was taken, to avoid the necessity of crossing the Biddle Glacier. Whilst going along the lake a gradual ascent was made and when the head of it was reached about half the ascent up the southerly ridge, lying between Lake McArthur and Misko Creek, had been made. The summit of the ridge was gained by a direct ascent, partly on fairly good rock and partly up a snow couloir. The ridge was then followed towards the mountain until it was seen that it would be very difficult, if at all possible, to make the entire ascent from the south side. A descent of a few hundred feet was then made into an intervening valley, and the southeasterly ridge gained, where a light lunch was taken at 10 o'clock. After this ridge was crossed and the next valley had been traversed the easterly ridge, overlooking Prospector's Valley, was climbed, and a second lunch eaten. Here the rope was put on and the

real ascent begun at 12.30. For several hundred feet the arête was followed, the climbing being very steep, the rock poor, and at places the arête assuming a knife edge, overhanging the valley to the north and with an almost perpendicular descent into the valley to the south. As the main peak had to be reached from the south a traverse of the easterly face became necessary after a time, and two attempts were made to cross it before a suitable place was found. The mountain was not in good condition for climbing, on account of the steep slopes being icy, with a light covering of loose snow, which threatened to avalanche at any moment, and the greatest care was necessary on the traverse.

When the base of the main peak was reached, after a scramble up a scree-covered ridge, the foot of the wall was followed until a chimney immediately above the south ridge was reached. After a fairly easy climb up this chimney a walk of a couple of hundred feet to the summit ended the ascent, at 2.30 p.m. Here the bottle left by Dr. Eggers and Professor Parker, at the time of the first ascent, was found in their cairn.

The descent was begun after a few minutes and the same route was taken to camp, except that the south ridge was avoided. A blinding snowstorm was passed through in the afternoon and as soon as Lake McArthur was reached rain was encountered, which accompanied the party into camp at 9.30 p.m., the second ascent of the mountain having taken fifteen and a half hours.

SOUTH ROUTE TO SUMMIT OF MT. VICTORIA.

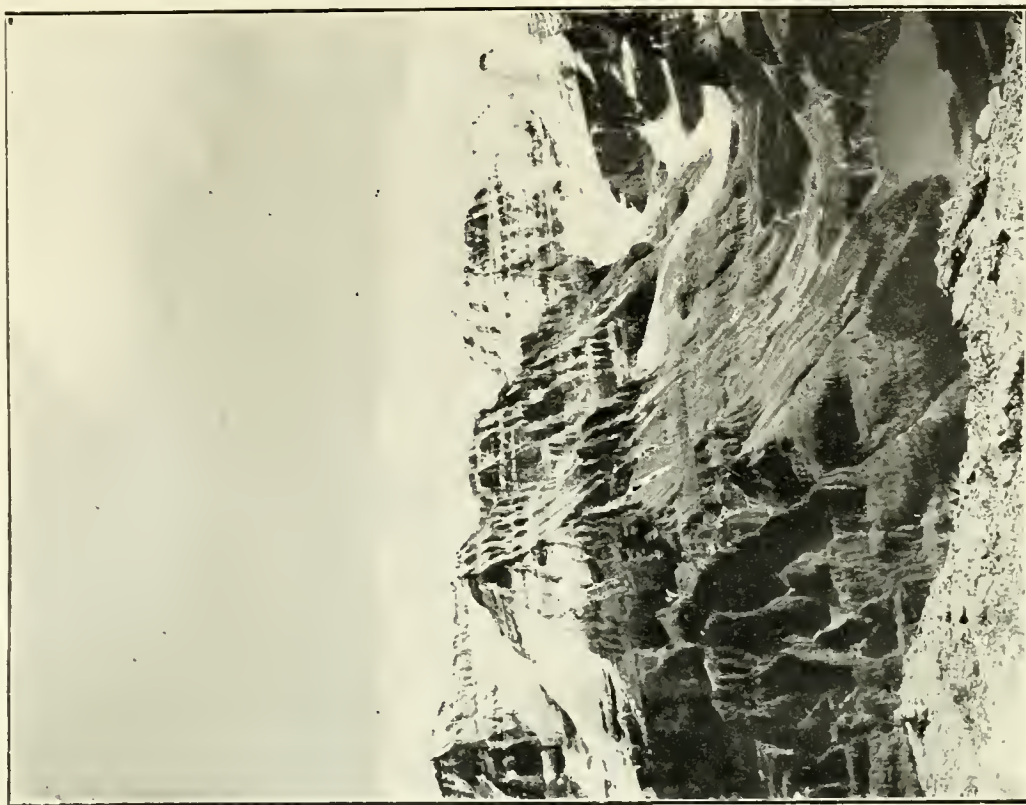
During the Alpine Club camp of 1909 at Lake O'Hara, a party consisting of Mrs. A. H. MacCarthy, A. M. Gordon and M. Goddard, under the leadership of J. P. Forde, made the first ascent of Mt. Victoria, 11,355 feet, from the south side.

The party, after passing around the east end of Lake



Howard Chapman, Photo

MT. BIDDLE



M. P. Bridgland, Photo

VICTORIA VIA HUBER ROUTE



O'Hara, ascended to the saddle between Mt. Huber and the Wiwaxy Peaks. From there the usual route up Mt. Huber was followed to the north side of the mountain, into the valley between Mts. Huber and Victoria. The course then led to the left, around the head of the valley, until the end of the bergschrund on the south side of Mt. Victoria was reached. Rounding the end of the schrund a short traverse led to the foot of the rock wall facing Mt. Huber. From where the snow on Mt. Huber was first reached to this point the climbing was very good, though the ice in the steps previously made on Mt. Huber and the hard snow on the south side of Mt. Victoria necessitated the cutting of a large amount of steps. The ascent of the wall was made on the rock beside a snow chimney about 400 feet high, to the long arête of Mt. Victoria, and the usual route along the arête followed to the summit, which was reached at noon, after a six hours' climb. The day was beautifully clear and the views to be had, particularly of the Lake Louise Valley, were magnificent. A leisurely descent by the same route, except that on return the westerly end of Lake O'Hara was taken, brought the party to camp at 5 o'clock.

This route provides a much shorter and easier climb of the mountain than the one from Lake Louise to the head of Abbot's Pass, and the long and tedious walk along the ridge from Abbot's Pass to the summit is avoided. On the portion of the ridge traversed on the above climb the snow was dangerously corniced in a number of places, and great care was necessary in avoiding these cornices. Some step cutting was required along the ridge, though the generously large footstep of a party who had made the ascent from Lake Louise a few days previously were of immense assistance to the Alpine Club party. Where no cornice existed the arête was followed, the party walking for some time with one foot on the Atlantic and the other foot on the Pacific watersheds.

Had it not been that all the members of this party had been across Abbot's Pass on the previous day they would have returned by that route, and for parties who have never been over the Pass this would form an interesting variation of the climb.

A SHORT TRIP IN THE SELKIRKS.

BY R. R. COPELAND.

Most of the high peaks visible from Revelstoke had in previous years been ascended jointly by Harry Siegfried and the writer, but there remained one that towered over all the rest, which had not yet been scaled, Albert Peak, 9998 ft.

Taking the train on August 30th, 1909, to Twin Butte, we walked east along the track and had lunch at Twin Creek. A fair start was made at 1 p.m., walking along the track for another half mile to a point where a shoulder from Albert Peak comes close to the track. Just to the left of where we ascended there was an out-crop of rock.

The going was found very good, as going goes in this part of the country, but the day was exceptionally warm, and there was no standing timber to afford comforting shelter from the hot rays of the sun. We had realized before starting that there was little chance of any water before reaching the top of this shoulder, so a steady gait was kept up and the plateau reached after a climb of over 4000 feet. As by this time it was getting dusk, it was decided to camp, although there was little chance for water. Dropping our packs I left Harry to prepare camp, making towards a small gully, in the hopes of finding a little of the precious liquid.

This proved to us to be almost the most interesting part of our trip, for I had not proceeded far through the tangle of fallen and burnt trees, before I saw a bear running into a small clump of alders. Not being equipped for a bear hunt, having only my light ice-axe, I made a

detour round the clump, intent on investigating the gully for water. But the bear, a huge, lanky, old silver-tip, was evidently of a suspicious nature, for he left his shelter and walked slowly in the direction I had left my companion. Calling out that he might expect a visitor shortly, I stumbled on through the gathering dusk, when once more our visitor changed his mind and decided to become more closely acquainted with me. Climbing on top of a large fallen log, I brandished my ice-axe using the full power of my vocabulary and lungs in the vain effort to inspire Bruin with fear. Hearing my eloquent language, Harry was by this time hurrying towards me, although out of sight behind a low rise of ground. Even though our visitor did not appear to have hostile intentions towards me, I rather resented his familiarity, and when within half a dozen paces, I made a flying leap towards him. These sudden tactics on my part, changed his mind, and he started on the run as hard as he could in the direction of Harry, while I followed in hot pursuit to aid the latter, if necessary. Mr. Bruin quickly disappeared over the top of the rise, and a wild yell of defiance from my companion notified me that he had introduced himself to our visitor. A moment later the latter once more appeared on the top of the rise and again seeing me, ran off at a tangent into some adjoining big timber, leaving me undisturbed to rejoin my peaceful quest for water; which, however, proved fruitless. By the time I returned to camp it was quite dark, and I found that the bear had once more shown himself, but only for a moment, distrusting my companion, who, by the way, can give a yell like the proverbial Comanche.

Putting up our small shelter tent we were soon eating a well-earned repast, which was, however, rather of a dry nature. We then rolled in and were soon asleep. I would here like to point out that it is comparatively easy to do without water for a considerable period, if you

make up your mind from the start that it is very probable you will have to do without it. Experience has taught both of us that to allow the mind to dwell upon the cravings of thirst and continually to be expecting to relieve it aggravates the symptoms a hundred-fold. In time one certainly gets genuinely weak—no doubt to a great extent owing to the accompanying difficulty of partaking of a sufficient quantity of solid food—but with a calm mind the actual craving need be little more than a slightly unpleasant experience for the time being.

At 4.30 next morning a good start was made after partaking of a light breakfast. Ahead and a little to the left of us we could see a long green slide covered with grass and flowers, and up this we ascended till once more we reached the edge of the "hogsback". Down on the other side we could see a small stream flowing, but as this seemed at the time out of our general route, we kept on up the "hogsback" till we reached Wheeler's survey station—North Twin, 8033 feet—at 10 a.m., where we found snow. A fire was soon made with a little dry heath and the help of some dry wood which Harry fetched from a distance below; and by 10.30 we were enjoying our first drink since leaving the railway, in the shape of some steaming hot soup. After a good rest it was decided that our best route lay across the basin where we had seen the stream, and, accordingly, we clambered down once more, finding an old camping ground, used I believe by M. P. Bridgland, while on a survey. Here a comfortable camp was made, an early supper enjoyed and then a quiet evening walk taken to reconnoitre for the morrow's climb.

The next morning broke clear and beautiful. A hearty breakfast was enjoyed, some lunch packed up, and a start made from camp at 5.30. Crossing some meadows, aglow with flowers, we reached the foot of the beautiful little glacier lying between Albert Peak and

North Albert Peak. The foot of it was perched above us on the edge of what might be termed one of the upper steps of a huge staircase. We kept to the next lower step, which was in one place littered with the remains of séracs, fallen from the glacier above. Below us, down the valley constituting the main source of East Twin Creek, could be seen the lower worn steps of this giant winding staircase, vacated by the glacier in past ages.

Here we halted for a few minutes to decide on the best means of reaching the main arête extending from far down the valley, right up to the summit. To go down in the valley and climb from the base of the arête looked by far the most simple route, but this would entail a very long, tedious climb, so it was decided to climb right up the face of the arête, immediately on the far side of the foot of the glacier. Between us and the cliff lay a long lateral moraine, up which we trudged, and then up the rocks. These were found to be in very rotten condition in most places. The cliff was composed, more or less, of alternate layers of white marble and dark coloured, rotten limestone; and observation soon showed us that, where possible, it was advisable to keep to the ledges where the marble predominated. The height from the moraine to the edge of the arête above was possibly only 800 feet, yet this portion occupied us for several hours, and from a mountaineering point of view was quite interesting. After finally overcoming this portion, we found the edge of the arête quite firm and a long, exhilarating scramble of about 2000 feet brought us at 1.30 finally to the summit. This consists seemingly of a horizontal ridge about a hundred feet in length lying at right angles to the arête up which we had climbed. After lunch a small stone-man was built against a large boulder, and possession taken of the peak in the name of the Alpine Club of Canada and of the Revelstoke Mountaineering Club.

The air was rather hazy on account of bush fires; still, we could easily distinguish our old friend and neighbor, Mt. Begbie, towards the west; while in the other direction, we could make out Sir Donald and the group of mountains in its vicinity. Far below us, between our peak and North Albert Peak lay the beautiful little glacier before mentioned, which was very badly broken up at its lower extremity, evidently where it precipitated itself over the huge "steps," forming enormous séracs and an incredibly wide crevasse reaching clear across the glacier. Near the base of the arête nestled a beautiful emerald-green alpine lake, while beyond was the range lying between the two Twin Creeks, the whole forming a glorious picture. The climb down, and the ensuing tramp across the long meadows in the gorgeous lingering sunset brought us to camp with ravenous appetites. After a refreshing night's rest, an early start was made for the railway, which was reached in time to catch No. 5 for Revelstoke, well pleased with our annual mountain climb.

SCIENTIFIC SECTION.

GEOLOGY AND GLACIAL FEATURES OF MT. ROBSON.

BY A. P. COLEMAN.


Though Mt. Robson has been seen and admired by travellers ever since 1865, when Milton and Cheadle described its splendor, it had apparently never been actually visited by white men before 1907, when a party consisting of Mr. L. Q. Coleman, Mr. George Kinney and the writer reached its southern face. In the following summer the same party had an opportunity to study it from the opposite side, and it is intended here to give a general account of its geology and glacial features as then worked out.

The region along the Yellowhead Pass was briefly described and mapped by Mr. J. McEvoy in 1900, and his outline of the geology will be followed here. In his map a band of the Castle mountain series (Upper Cambrian) is represented as covering the area of Mt Robson, and he describes this series as made up principally of quartzite and limestone. My own observations agree with this; and as no undoubted fossils were found by us, we have no reason to change his classification.

On the south side of the mountain along the small eastern branch of Grand Forks River grayish and purplish quartzite is found up to about 1,000 feet from the base. Above this along the canyon we found gray limestone, sometimes containing chert, and the same rock



Map
of
Mt. Robson

Scale  Miles



occurs north of Lake Kinney in the valley of the main Grand Forks River, and as far up as Berg Lake. Since the boulders brought down from Mt. Robson by glaciers seem all to be of similar bluish gray limestone weathering yellow or brown, it appears that the mountain as a whole is built of nearly flat lying limestone resting on quartzite, the latter rock showing only on the south side where the Grand Forks and its tributaries have cut most deeply.

Though the rocks as a whole lie nearly horizontal, they have an upward bend to the south and also to the north. This is especially marked where the quartzite comes up from beneath the limestone on the southern buttresses of the mountain, the strata curving rapidly upwards with inclinations of from 30 degrees to 70 degrees to the north. On mountains farther south the dip becomes vertical or even somewhat overturned.

On the northwest side of Mt. Robson, at the falls near Berg Lake, on the other hand, the limestone dips southeast with an inclination of about 10 degrees; and near the main glacier thinly bedded limestone dips south at about 25 degrees. In the range of mountains to the northwest of the Berg Lake Valley the dip is about the same. To the east of the main glacier the Ptarmigan and Lynx Mountains show a gentle dip westwards.

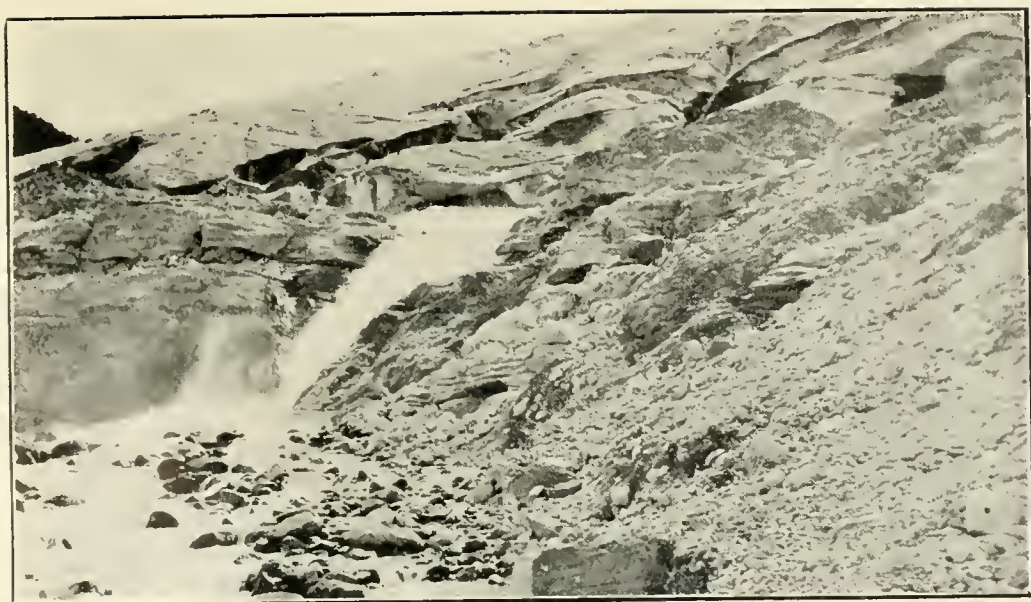
From the structural point of view Mt. Robson represents the bottom of a syncline or basin with gentle inclinations from all sides. The more expanded and shattered forms around it, once probably parts of anticlines, have suffered far more from the destructive forces than the slightly compressed and, therefore, strengthened parts of the syncline.

In both rocks and structural features Mt. Robson is of a very simple type. It is surrounded on three sides, northwest, southwest, and south, by deep valleys, from which it rises in splendid unscalable cliffs. On these

sides erosion is going on rapidly by the action of frost and weather, while the rivers are cutting back their canyons to the northwest and northeast.

The Grand Forks River may be said to rise in the main glacier of Mt. Robson, flowing over a flat cone of débris derived from the glacier and spreading into a tangled skein of distributaries before entering Berg Lake. From this it flows southwest over cliffs with a succession of water-falls having a total height of 1,500 feet. The valley then turns for a mile to the south and is encumbered with immense blocks of limestone which have rolled from the cliffs of Mt. Robson. Another drop of about 500 feet brings the river to the delta flat which it has formed on entering Lake Kinney, which appears to have been dammed by an ancient moraine. A little below the outlet the much smaller east branch of the river comes in from a wild and desolate canyon.

The west and south sides of Mt. Robson are almost free from glaciers or important snow fields because of their excessive steepness, which is evident when one remembers that within a mile or two there is a rise from Lake Kinney of nearly or quite 10,000 feet. On the opposite side, toward the northeast, the slope is less rapid, and snowfields and hanging glaciers are formed, which discharge by ice avalanches upon the main glacier beneath. This makes a broad sheet of ice with moderate slopes between Mt. Robson and the Lynx Mountains to the northeast; and then bends off as a well defined glacier toward the northwest, partly enclosing the Rear Guard Mountain. It ends at about 5,700 feet on the pass between Smoky and Grand Forks Rivers. Its front is parted by a small hill of solid rock, and each side feeds a torrent, the smaller one to the west, flowing into Berg Lake, and the larger toward the northeast, splitting into two streams, one entering Berg Lake and the other Lake Adolph. The latter body of water forms the head



A. P. Coleman, Photo

GLACIAL STREAM FROM N. SIDE OF MAIN GLACIER
Mt. Robson divides its waters between the Pacific and Arctic Oceans



Rev. G. B. Kinney, Photo

SHOWS FOREFOOT OF ROBSON GLACIER
Sending its waters northward to Lake Adolphus and Southward to Berg Lake.
The Great Divide lies between.



of Smoky River, a tributary of Peace River; so that the main glacier sends its drainage partly into Fraser River and the Pacific; and partly into Peace River which joins the Mackenzie and reaches the Arctic Ocean. This is probably a unique instance of a glacier and its effluent river dividing their waters between two oceans 1,300 miles apart.

The two small lakes at the ends of the Smoky-Grand Forks Pass appear to be dammed by old moraines, formed probably toward the close of the last Ice Age, when the glaciers of Mt. Robson, probably joined by ice from the lower range to the northwest, still filled the valley. Two other glaciers reach the level of this valley. The Blue Glacier comes steeply down from the Helmet to Berg Lake, where it sets free small icebergs; and another glacier, not yet named, comes down from the same quarter just to the southwest of Berg Lake, and shows a broad stratified front of ice a little above the valley. All of these glaciers seem now to be in retreat, though not at a very rapid rate, and old moraines occur at several stages beyond the present ice front.

The hill of rock dividing the end of the main glacier protects a grove of ancient spruce and balsam, some of the trees being more than a foot in diameter. Their growth is very slow at the elevation (about 5,700 ft.), and one tree seven inches thick cut several feet above the ground, showed 240 annual rings. It must have been 250 years old, and its larger neighbors are probably 400 years old. Ice cannot have invaded this sheltered spot for at least that length of time.

In order to determine the retreat or advance of the ice in the future some measurements were made from the present ice front on the 1st September 1908. The directions given below are magnetic, the variation being 28 degrees to the east.

Line run west from the centre of the present ice front south of the grove.

	yards
Muddy morainic material recently freed from ice	12
Last moraine (without plant growth) begins	68
Last moraine (without plant growth) ends	80
Crest of next moraine (a few small willow bushes)	127
End of next moraine	170
Crest third moraine (willow with 13 annual rings)	187
Crest of fourth moraine (spruce 250 years old)	296
End of fourth moraine	311

From the end of the line, at 311 yards, the largest boulder on the inner edge of the oldest moraine is distant 61 yards in the direction N 20° E (magnetic). This boulder is of brownish cherty limestone and rises eight feet above the general level of this part of the moraine. It should be easily recognized by later parties.

Beyond the oldest moraine there is a gravel flat to the west more or less covered with spruces, some having a diameter of one foot, and a probable age of 400 years. More than 400 years ago, after a long period of retreat from the outlets of the two lakes in the valley, a distance of a mile and a half to the northeast and of two miles to the southwest, respectively, the ice halted for some time at the oldest (4th) moraine. Within quite recent years it has again retreated setting free the three later moraines.

Another line was run from the mouth of the largest glacial stream, on the north side of the end of the glacier. The river pours from an ice cave as a water-fall tumbling for 37 yards over a steep slope of limestone. At 229 yards from the mouth of the cave on the left side of the river in the direction 290° (or 20° north of west) there is a prominent block of limestone about 14 feet square and 5 feet thick resting upon an old moraine.



A. P. Coleman, Photo

HANGING GLACIERS WITH BLOCKS BREAKING OFF
N.E. Side of Mt. Robson



A. P. Coleman, Photo

ICE AVALANCHES ON UPPER EDGE OF MAIN GLACIER
N.E. Side of Mt. Robson

The main glacier with its tributary hanging glaciers covers most of the northeast side of Mt. Robson, presenting a very striking contrast with the bare cliffs of the opposite side, due mainly to the gentler slope north-eastwards, permitting snowfields to accumulate. The large size of the glacier, when compared with its relatively small gathering ground, is due to the very heavy precipitation on Mt. Robson, which rises suddenly for 10,000 feet near the southwestern edge of the Rockies facing a region with much lower mountains. The western air currents coming from the Pacific are forced upward for several thousand feet. This causes the rapid precipitation of the moisture, giving rise to almost daily falls of snow on the summit, especially on the side towards the main glacier. In summer the snowfall at higher levels is represented by showers of rain in the valleys, and there is a very rank growth in the Grand Forks Valley south of the mountain. To the north the valley is nearly 3,000 feet higher and has a much cooler climate, so that vegetation is much less luxuriant.

AN ADVENTURE WITH AN ERUPTION OF MONT PELÉE.

Being the Substance of a Talk Over the Camp Fire at
Lake O'Hara, August, 1909.

BY TEMPEST ANDERSON.

It will be in the remembrance of every one present that in May, 1902, severe volcanic eruptions took place in St. Vincent and Martinique, both of which islands form part of the chain of the lesser Antilles in the West Indies. The Royal Society appointed a committee to investigate the eruptions, by whom I had the honour of being nominated along with Dr. J. S. Flett, Petrologist to the Geological Survey, to proceed to the scene of the eruptions and report to them.*

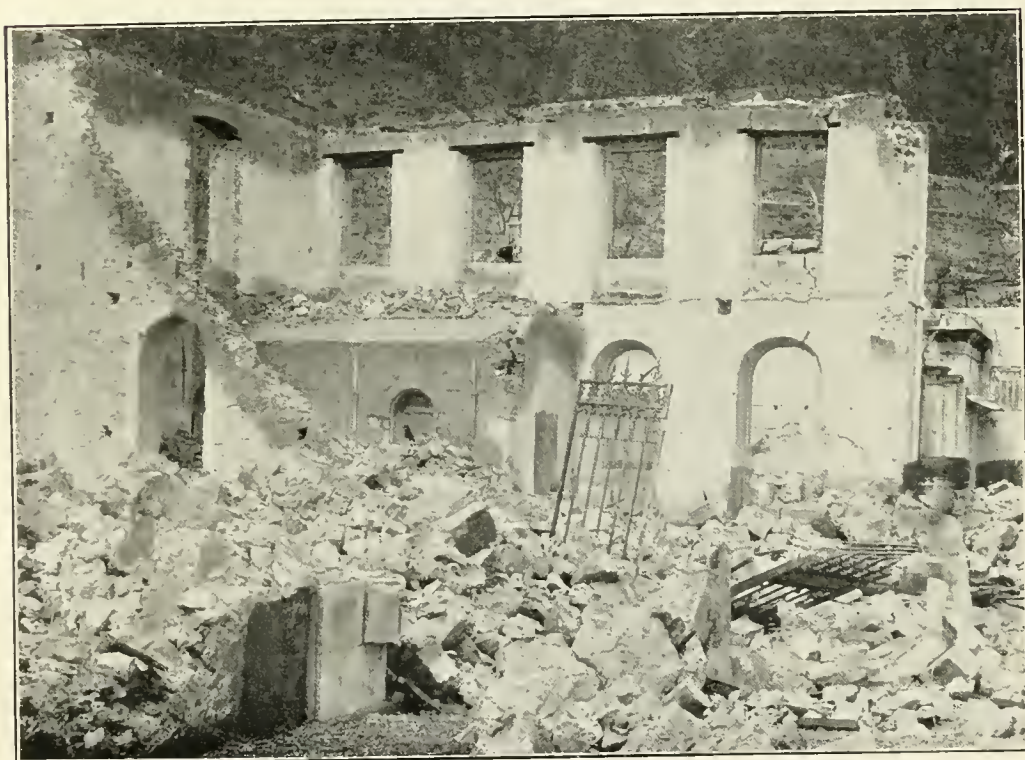
After visiting St. Vincent, which was the main object of our investigations, we proceeded to Martinique. On arrival at Fort de France we found that the devastated area to the north of the island was still almost entirely unoccupied. The greater part of the inhabitants of St. Pierre and the neighborhood had been killed by the eruption, and the few survivors were only returning by slow degrees. It was, therefore, impracticable to make our base of operations on land near the scene of the eruption. Fort de France was too far away to be available, except at a ruinous expenditure of time and money in going to and fro. It was, therefore, determined

* Anderson, Tempest, and Flett, John S.—Report on the Eruptions of the Soufrière in St. Vincent, in 1902, and on a visit to Montagne Pelée in Martinique—Part I. Phil. Trans. A Vol. 200, 1903, pp. 353-553. Part II. Phil. Trans. A Vol. 208,—1908, pp. 275.-332. See also Geographical Journal. March, 1903.



Tempest Anderson, Photo

ST. PIERRE, JULY 8th, 1902



Tempest Anderson, Photo

THE BANK, ST. PIERRE, JULY 8th, 1902

to engage a sloop, provision it, and live on board, moving by day to any point where landing was desirable, and returning at night to some safe anchorage within reasonable distance. We devoted our first day to an examination of the ruins of St. Pierre, and in the evening we moved about two miles south along the coast and spent the night at anchor off Carbet, just at the limit of the area of devastation, at a spot commanding a full view of the mountain. Next morning we returned to St. Pierre, and moored the sloop to one of the buoys at the north end of the town. Dr. Flett landed and further examined the ruins, while I remained on board and took photographs of the magnificent cauliflower masses of dust and steam which were frequently ejected from the great triangular fissure which opens from the crater. Later in the afternoon we sailed further north along the coast, still taking photographs of Mont Pelée, which was clearer that day than we ever saw it before or after, and showed to great perfection the deeply eroded valleys with which its slopes are scored. They much resemble those in corresponding position on the slopes of the Soufrière in St. Vincent and appear to be formed in the same way in strata of similar composition, viz., fragmentary ejecta from the volcano which had consolidated to form soft tuffs, and had subsequently been eroded into their present forms by ordinary atmospheric agencies.

We returned and sailed slowly south past the base of the volcano, witnessing and photographing many small explosions and their cauliflower clouds of dust, and thus twice crossing the track of the eruption which took place later. We anchored as before off Carbet, and watched the sun set behind the clouds of ashes ejected by the volcano. When approaching the horizon and thus viewed, the sun appeared a sickly yellowish green, and so pale that it could be looked at with the naked eye

without discomfort. Later on, after sunset, the gorgeous after-glow appeared, and the thin clouds in the western sky were lit up with most brilliant red, beginning perhaps 30° or 40° from the horizon, while the part below still remained yellowish-green. Later still, as the sun sank further below the horizon, the yellowish-green area sank also, and only the reds remained, till they too sank out of sight, and gave place to the light of a brilliant three-day's-old moon. We had sat on deck absorbed in watching this superb spectacle, and were just going to begin supper, when one of us, looking towards Pelée, said, "That cloud is different to the others. It's quite black, and I'm sure it's coming this way." A few moments' examination confirmed this, and, the captain's attention being called to it, we all, passengers and crew, heaved up the anchor as quickly as possible, and set all sail. The black cloud had meanwhile rolled down the side of the mountain on to the sea, and came quickly towards us. We had not moved a moment too soon. The upper slopes of the mountain cleared somewhat and some big red-hot stones were thrown out; then I saw the triangular crack become red, and out of it poured a surging mass of incandescent material, reminding me of nothing so much as a big snow-avalanche in the Alps, but at a vastly different temperature. It was perfectly well defined, did not at all tend to rise like the previous cauliflowers, but flowed rapidly down the valley in the side of the mountain which had clearly been the track of previous eruptions, till in certainly less than two minutes it reached the sea, and was there lost to view behind the remains of the first black cloud, with which it appeared to coalesce. There on the slopes of the mountain were doubtlessly deposited the greater part of the incandescent ash, while the steam and gases, with a certain portion of still entangled stones and ash, came forward in our direction as a black cloud, but with much greater rapidity



Tempest Anderson, Photo

MT. PELEE IN ERUPTION, JULY 9th, 1902



Tempest Anderson, Photo

MT. PELEE IN ERUPTION, JULY 9th, 1902

than before. The sailors were now alarmed, nay, panic-stricken, got out the oars and pulled for their lives. Meanwhile the cloud came nearer and nearer; it was well defined, black, and opaque, formed of surging masses of the cauliflower type, each lobe rolling forward, but not all with one uniform rotation; bright scintillations appeared, some in the cloud itself, and some like little flashes of light vertically between the cloud and the sea on which it rested. These were clearly the phenomena described by the survivors in the St. Vincent eruption as "fire on the sea," occurring in the black cloud which overwhelmed the windward side of that island. We examined them carefully, and are quite clear that they were electric discharges. The scintillations in the body of the cloud became less numerous and more defined, and gradually took the form of vivid flashes of forked lightning darting from one part of the cloud to another. The cloud rapidly gained on us. When it had got within perhaps half a mile or a mile—for it is difficult to estimate distances at sea and in a bad light—we could see small material falling out of it in sheets and festoons into the sea, while the onward motion seemed to be chiefly confined to the upper part, which then came over our heads and spread out in advance and around us, but left a layer of clear air in our immediate neighborhood. It was ablaze all the time with electric discharges.

As soon as it got overhead stones began to fall on deck, some as big as a walnut, and we were relieved to find that they had parted with their heat and were quite cold. Then came small ashes and some little rain. Eventually we gained the harbor of Fort de France unhurt, and anchored for the night. We slept on deck, and in the morning I heard a boat. I put my head over the bulwark. A voice exclaimed, "Anderson! is that you?" I said, "Yes," and it continued, "I guess we have come

out to seek your bodies." It was Jagger, now of Boston "Tech," and who is now organizing the new observatory on Kilawaii. We went on shore and told our adventures to a number of scientific men and pressmen whom we had left three days previously. One of the latter kept aloof and said nothing. We found afterwards he had immediately gone to the telegraph office and wired an account to his paper in New York which appeared with many embellishments as having happened to "Our Own Representative."

The proposed ascent of Mont Pelée next day, for which men had already been engaged, was abandoned. The cloud was also noticed at Fort de France. It was described as like those in the previous eruptions, but two unbiassed observers, who had seen it and that of May, declared this was the larger of the two.

Returning now to the mechanism of the hot blast and the source of the power which propelled it, both my colleague and I are convinced of the inadequacy of previous explanations, such as electricity, vortices, or explosions in passages pointing laterally and downwards, or explosions confined and directed down by the weight of the air above. Such passages into the mountain, which, to be effective, would require to be caverns closed above, and not mere open ravines, do not exist in the case of the Soufrière, and we are not aware that they have been observed in Mont Pelée; and as to the weight of the air, this did not prevent the explosions in the pipe of the Soufrière from projecting sand and ashes right through the whole thickness of the trade-winds till they were caught by the anti-trade current above and carried to Barbados, 100 miles to windward. Moreover, the black cloud, as we saw it emerge from Mont Pelée, seemed to balance itself at the top of the mountain, start slowly to descend, and gather speed in its course, and the second incandescent discharge followed the same rule.

We believe that the motive power for the descent was gravity, as in the case of an ordinary avalanche.

The accepted mechanism of a volcanic eruption is that a molten magma rises in the volcanic chimney. It consists of fusible silicates and other more or less refractory minerals, sometimes already partly crystalized, and the whole highly charged with water and gases, which are kept absorbed in the liquid, partly by the immense pressure to which they are subjected. When the mass rises nearer the surface and the pressure is diminished, the water and gases expand into vapour and blow a certain portion of the more or less solidified materials to powder, or, short of this, form pumice stone, which is really solidified froth, and they are violently discharged from the crater. When the greater part of the steam and gases has been discharged, the lava, still rising, finds a vent either over the lip of the crater, or often through a lateral fissure, and flows quietly down the side of the mountain.

It is quite recognized that these phenomena may occur in various relative proportions. The explosive phase may predominate, in which case only sand, pumice, and fragmentary material are discharged, with perhaps ejected blocks torn from the sides of the chimney, and in this case an ordinary ash or cinder cone is built up. On the other hand, the magma may contain little vapour, and the lava may be discharged quietly and spread out widely as a sheet over the surrounding country. The Snake river basalts in Western North America are of this class, and they cover an area larger than England and France combined. It is supposed that the lava welled out quietly through fissures. Such fissures I have seen in Iceland, studded with a row of quite small craters only. We believe that in these Peléan eruptions an inter-immediate phase occurs. The lava which rises in the chimney is charged with steam and gases, which explode

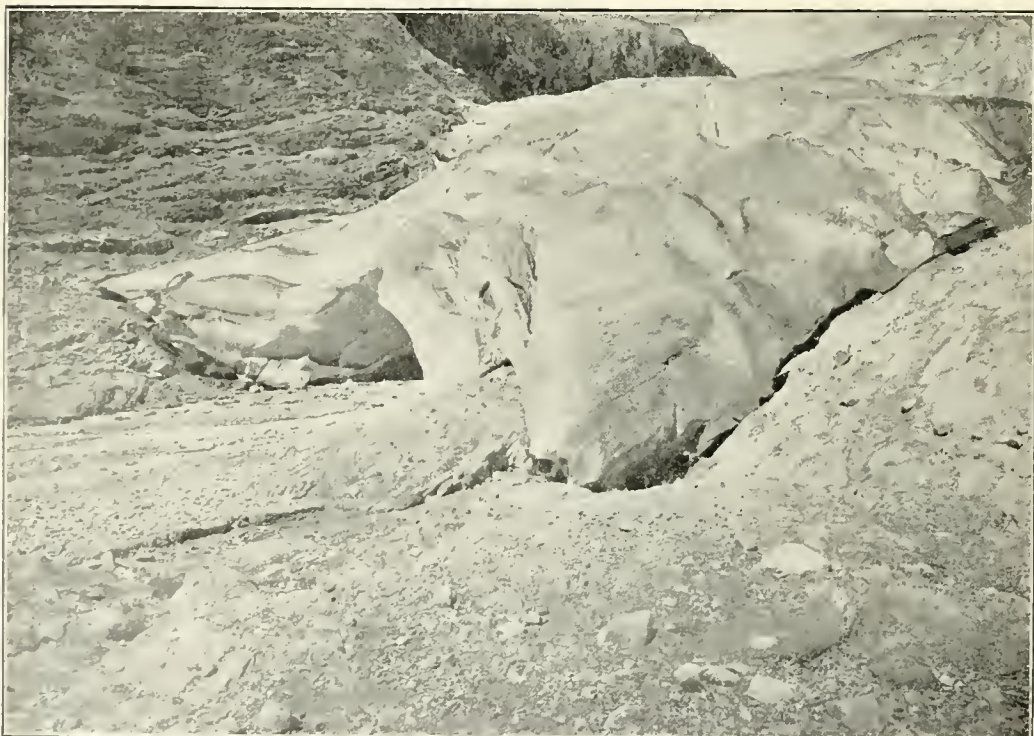
as usual, but some of the explosions happen to have only just sufficient force to blow the mass to atoms and lift the greater part of it over the lip of the crater without distributing the whole widely in the air. The mixture of solid particles and incandescent gas behaves like a heavy liquid, and before these particles have time to subside the whole rolls down the side of the mountain under the influence of gravity, and consequently gathers speed and momentum as it goes. The heavy solid particles are gradually deposited, and the remaining steam and gases, thus relieved of their burden, are free to ascend, as was the case with the black cloud which rose over our heads on July 9.

We had concluded, from our examination of the Soufrière, that something of this sort must occur, but the explanation was obvious when we saw the eruption of Mont Pelée.



A. O. Wheeler, Photo

ILLUSTRATION NO. 1
From View Point 79.3 Feet South of Rock No. 1
1909



A. O. Wheeler, Photo

ILLUSTRATION NO. 2
From Rock No. 2
1909

MOTION OF THE YOHO GLACIER.

BY ARTHUR O. WHEELER.

In July and August of 1909 it was the good fortune of the Alpine Club of Canada to entertain as its guests a number of members of the Alpine Club, London, and of the Scottish Mountaineering Club. They came out in advance of the British Association Meeting, held at Winnipeg during the latter part of August, in order to be present at the Canadian Club's fourth annual camp at Lake O'Hara.

On August 9th, at the close of the camp, those of the party whose engagements permitted were taken on a special six-day expedition around the Yoho Valley. The route lay high up along the sides of the mountains enclosing it, by way of Sherbrooke Lake, Niles Pass and the Daly Icefield to the Yoho Glacier; thence by the customary pony trails to the Upper Yoho Valley and home by the Yoho Pass and Emerald Lake.

The third day out camp was pitched beside the pony trail, about a quarter of a mile west of the Yoho Glacier. The three preceding days had been very strenuous ones, so on the fourth, a short move was made to the little lake in Waterfall Valley, not far below the Twin Falls. Advantage was taken of this short move to make the annual observations for motion of the Yoho Glacier.

On August 12th, a glorious summer day, a party equipped with the necessary instruments cut its way up the foot of the icefall and without difficulty found all of the six plates set in line across the forefoot on the 1st of July of the previous year.

To Obtain Rates of Flow.

The base line A - B* on the east side of the valley was visited and angular readings taken from each end

* See map of ice forefoot in 1908 issue of the Canadian Alpine Journal (Vol. 1, No. 2, opp. page 274.)

on the plates in the position in which they had been found. The following table gives the results for the several years since observations were inaugurated by the Club.

*Table Showing the Motion of Plates set on the
Yoho Glacier.*

Plate	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
<i>Movement between July 15th, 1906, and July 17th, 1907</i>						
Total Motion	29 ft.	74 ft.	89 ft.	124 ft.	134 ft.	124 ft.
Yearly Motion	29 ft.	74 ft.	89 ft.	124 ft.	134 ft.	124 ft.
Daily Motion	0.95 in.	2.43 in.	2.93 in.	4.08 in.	4.41 in.	4.08 in.
<i>Movement between July 17th, 1907, and July 1st, 1908</i>						
Total Motion	20 ft.	43 ft.	112 ft.	115 ft.	127 ft.	127 ft.
Yearly Motion	21 ft.	45 ft.	117 ft.	120 ft.	133 ft.	133 ft.
Daily Motion	0.69 in.	1.48 in.	3.85 in.	3.95 in.	4.37 in.	4.37 in.
<i>Movement between July 1st, 1908, and August 12th, 1909.</i>						
Total Motion	25 ft.	67 ft.	100 ft.	147 ft.	161 ft.	157 ft.
Yearly Motion	22 ft.	60 ft.	90 ft.	131 ft.	144 ft.	141 ft.
Daily Motion	0.72 in.	1.97 in.	2.96 in.	4.31 in.	4.74 in.	4.62 in.

1906-1907, Average daily motion—3.15 inches .

1907-1908, Average daily motion—3.12 inches.

1908-1909, Average daily motion—3.23 inches.

Comparing the three sets of observations for surface movement of the ice, each for a period of 365 days, we have a greater motion in 1909 for every plate except No. 3. In 1907 this plate was found in a shallow crevasse, but in 1909 the motion almost exactly agrees with that then observed; while in 1908 it was considerably greater. This portion of the ice has always been found much broken and crevassed, and on that account the flow may be erratic.

For plates Nos. 1 and 2 the movement observed in 1909 is greater than that in 1908 and less than that in 1907.

For plates 4, 5 and 6 the observed movement in 1909 exceeds that of the previous observations.

Speaking for the whole series there seems to have been a general increase of surface motion over previous years. It is worthy of note as there can be little doubt that the entire volume of the ice has very considerably decreased. This may be readily seen by comparing the illustrations here given with those obtained from the same view-points in the years 1907 and 1908. (See Canadian Alpine Journal Vol. I, Nos. 1 and 2, also Vol. II., No. 1.)

For Advance or Retreat.

The usual measurements were made from Rocks Nos. 1 and 2, and from Sherzer Rock to the nearest ice. The results are here tabulated, together with those for preceding years.

Table Showing Measurements to Nearest Ice.

Year	From Rock No. 1 Left side of Stream	From Rock No. 2 Left side of Stream	From Sherzer Rock Right side of Stream
1904 . . .	—	—	79.4 ft.
1906 . . .	27.5 ft.	36.6 ft.	79.6 ft.
1907 . . .	35.8 ft.	43.8 ft.	123.0 ft.
1908 . . .	72.3 ft.	104.4 ft.	138.5 ft.
1909 . . .	104.2 ft.	139.0 ft.	189.3 ft.

Distance from Rock No. 1 to Rock No. 2=53 ft.

1906-1907, Average retreat of ice forefoot—19.6 ft.

1907-1908, Average retreat of ice forefoot—37.5 ft.

1908-1909, Average retreat of ice forefoot—39.0 ft.

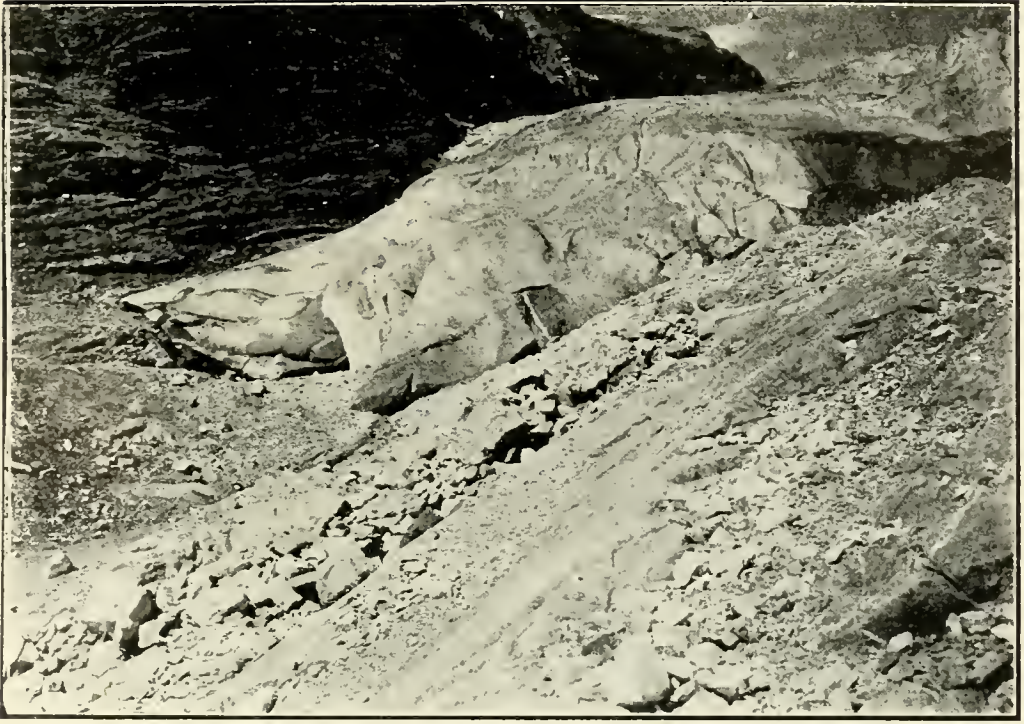
Taking a mean of the measurements on both sides of the stream issuing from the ice forefoot the recession for the past two years has been about the same, although the relative measurements vary considerably owing to irregular changes in the formation, due to the breaking off of great blocks at the extreme points.

Annual Change In Formation of Ice Forefoot.

A study of the photographs taken from view-point 79.3 ft. south of Rock No. 1, from Rock No. 2 and from view-point 6½ ft. nearer the ice than the Vaux marks of 1902, show clearly the change in forefoot and the general shrinkage of the ice.

The greatest change in form seems to have been on the right side of the stream, where a large chunk has broken off and melted away. This is clearly seen by comparison of illustration No. 3.

The most remarkable feature of the shrinkage is seen in Illustration No. 2. By comparing this with the



A. O. Wheeler, Photo

ILLUSTRATION NO. 3

From View Point $6\frac{1}{2}$ Feet Nearer Ice than Vaux Marks of 1902.
1909



A. O. Wheeler, Photo

ILLUSTRATION NO. 4

From Station D

For position see map of Ice Forefoot, Vol. I., No. 2, page 274

corresponding views presented in previous issues of the Journal the greater height of cliffs created by the decrease of thickness in the ice is very marked; also the uncovering of the rock on the right side of the stream. The latter is still more apparent in Illustration No. 1.

The best idea of the general shrinkage can be obtained by comparing Illustration No. 4 with that shown opposite page 153 in the first issue of the Journal, Vol. I, No. 1.

A special feature of the forefoot last summer was seen in the magnificent ice-arch, spanning the full bed of the stream from side to side. It is well shown in Illustration No. 4.

The observations will be continued during the summer of 1910, and it is intended to establish a station on the side of the Rocky spur of Mt. Gordon, seen in Illustration No. 4, for the purpose of gathering information with regard to the position and changes of the névé line.

OBSERVATIONS ON GLACIERS IN 1909.

BY GEORGE VAUX, JR.

The glacial observations and measurements which we have conducted for so many years, were carried on jointly by my brother, the late William S. Vaux, Jr., and myself. It was his enthusiasm and love of nature which caused us first to enter upon them; he it was who had given most of the thought and study to the subject, who had done the larger part of the instrumental work, and all of the final reductions of the observations, in order to secure results.

Hence it is that the writer finds himself at considerable disadvantage in continuing the observations and the reports upon them.

In the summer of 1908 none of us visited the region so that we have nothing original to report for that season.

Illecillewaet Glacier.

The winters of 1907-1908 and 1908-1909 do not appear to have differed materially from the average. The aggregate snow-fall at Glacier Station, according to the records kept there, was 37 feet 11 inches during the former winter, and 35 feet 1½ inches during the latter. It was not surprising, therefore, to note that the conditions of shrinking and recession heretofore noted on the Illecillewaet Glacier have not materially changed. The snout of the glacier has altered visibly, the ice arch being almost entirely absent in the summer of 1909, and the extreme tongue possibly somewhat closer to the left bank.

According to our measurements on August 12th, 1907, the distance from our marked rock "C" to the ice was 315 feet 10 inches. This distance had increased to 366 feet upon August 21st, 1909, being almost exactly 50 feet for the elapsed two years.

Upon September 26th, 1908, Mr. A. O. Wheeler, A.C.C., found this interval to be 355 feet, which indicates that the recession was about the same each year, when we take into consideration the lateness in the season of Mr. Wheeler's measurement.

A number of the iron plates set out in former years to measure the rate of flow were found deposited on the bed moraine near the edges of the ice. Some of them had undoubtedly been disturbed by tourists. But one plate was found on the ice, No. 4 of the 1906 series.

In conjunction with Mr. A. O. Wheeler, A.C.C., upon September 11th, 1909, a new set of plates, eight in all, was laid out. Their character was somewhat different from the ones heretofore employed. They were of $\frac{1}{8}$ inch iron, 8 inches square and with opposite corners turned over so as to make triangular points to catch in the ice. They were not painted and were roughly marked with a cold chisel "VAVX IX" meaning "Vaux, 1909," and in addition the number of the particular plates. I was indebted for them to Mr. Thomas Kilpatrick, A.C.C., of Revelstoke, who kindly had them made in the C.P.R. shops there.

The surface of the Glacier opposite the base line was exceedingly rough at some points. The ice was worked up into great gullies and furrows, which made it impossible to see to the far side of the glacier from the base. Accordingly these plates were laid out on a new line, somewhat further up the tongue, where the physical conditions were more favourable. The western end of this line was a conical fir bush growing high up on the left moraine and which any one on the spot can easily

identify. Mr. Wheeler's generous co-operation alone made this work possible, and his measurements, as found elsewhere in the Journal, should be consulted.

Asulkan Glacier.

This glacier was visited August 20th, 1909. It showed very great activity. Whilst recession and shrinkage appeared evident, yet there were marked indications of a decided advance since August 15th, 1907, much more than is usually to be expected by the change from summer to winter. The marked rock which in 1907 was 54 feet 6 inches from the snout could not be found at all, whilst a large rock in the left moraine, used since 1899 as a fixed point from which to locate other less stable rocks used in calculating the recession, seemed to have been undermined and to have slipped down into a small stream. The bed moraine in the vicinity had but recently been evacuated by the ice.

As a point from which to measure future recession, a large boulder of gray quartzite was selected. It measures about 6 feet by 4 feet and has peculiar fine parallel dark bandings. It was marked with red paint with a circle, and the words "Vaux 1909 8/20." The distance to the extreme tongue was 62 feet.

Victoria Glacier.

The conditions at the Victoria Glacier seem to be very similar to those heretofore noted. The main stream now flows from what would appear upon superficial examination to be the left side of the glacier. It is the true tongue, however, as shown by Prof. Sherzer. The ice cliffs in this vicinity are wasting away with considerable rapidity.

Upon August 8th, 1907, the distance from the marked double rock to the nearest ice was 126 feet. The re-

cession as measured August 2nd, 1909 was 25 feet 6 inches.

Wenkchemna Glacier.

We have established no definite points for measurements at this glacier. Comparing its face upon August 30th, 1909, with photographs taken on several different former occasions, the changes appear insignificant. Large boulders are still pushed forward and occasionally roll into the growing forest, knocking down trees in their course.

LINE OF PLATES SET ON ILLECILLEWAET
GLACIER NEAR FOREFOOT ON SEPTEMBER 11th, 1909.

Length of base=231 ft. 3 in., measured on right lateral moraine. Rocks at each end of the base marked with red paint.

Plates were set in line between southeast end of the base and a conical fir bush growing high up above the left lateral moraine. Plates were numbered from 1 to 8, commencing with plate nearest the base.

Angles Read at S.E. End of Base.

Object Sighted on	Transit Readings		Interior Angle
N. W. end of Base	360° 00'	180° 00'	Angle between Base and line of Plates. =81° 08'
Top of Conical Bush	278° 52'	98° 52'	

Angles Read at N.W. End of Base

S. E. End of Base	360° 00'	180° 00'	Angles between Base and Plates
Plate No. 1 . . .	65° 59'	245° 59'	No. 1=65° 59'
Plate No. 2 . . .	75° 25'	255° 25'	No. 2=75° 25'
Plate No. 3 . . .	82° 17'	262° 17'	No. 3=82° 17'
Plate No. 4 . . .	85° 19'	265° 19'	No. 4=85° 19'
Plate No. 5 . . .	87° 04'	267° 04'	No. 5=87° 04'
Plate No. 6 . . .	87° 58'	267° 58'	No. 6=87° 58'
Plate No. 7 . . .	89° 27'	269° 27'	No. 7=89° 27'
Plate No. 8 . . .	90° 35'	270° 38'	No. 8=90° 33'
Top of Conical Bush	93° 09'	273° 09'	Top of Bush=93° 09'



Julia W. Henshaw, Photo

THE ARBUTUS (*Arbutus Menziesii*)

BOTANICAL NOTES

THE ARBUTUS.

(*Arbutus Menziesii*.)

BY JULIA W. HENSHAW.

This beautiful tree, which belongs to the Heath Family, (*Ericaceæ*) and forms one of the chief ornaments of the hillsides close to the Pacific Ocean is commonly called the *Arbutus* by British Columbians though occasionally one hears the romantic Spanish name *Madroño* (pronounced Ma-dron-yo) applied to it in Canada, as is generally done in California.

The *Arbutus* is found along the Western Coast, and also on Vancouver Island, sometimes growing straight and tall where the conifers shelter it from unfriendly storms; and sometimes bent and twisted, clinging to life in some cranny among the rocks, finding foothold on the edge of a precipice, or bordering a trail slashed through the sumptuous forest. Often I have found it growing only a few feet high, massed together in shrubby form; and again I have seen it towering a sixty-five feet up into the air, with a trunk five feet in circumference, spreading forth stalwart branches that in June bear great big panicles of white waxen bells, to be replaced when autumn comes with clusters of reddish-orange drupaceous berries.

The *Arbutus* is an evergreen, its bark is close and smooth by exfoliation, becoming rough near the base, and in midsummer thin layers of a rich Sienna hue begin

to peel off stem and branch disclosing a greenish-yellow surface, like satin to the touch. The leaves are thick, oblong, alternate, petioled, entire or serrulate, and are from four to five inches long; they are a glorious polished green and are sometimes delicately veined with red above, being pale and finely reticulated below. The wood of the *Arbutus* is very hard, shading from brownish to reddish-yellow; it is used to inlay furniture, and is much prized in the preparation of charcoal to be employed in the making of gunpowder. Those who have seen the *Arbutus* in British Columbia have no doubt been struck by the resemblance to its diminutive replica the Bearberry (*Arctostaphylos Urva-ursi*) which carpets the ground in many western localities and is its next of kin in the Heath family.

It is a most remarkable fact that neither in Britton and Brown's "Flora of the Northern States and Canada," in Coulter's "Rocky Mountain Botany," nor in Hough's "Trees of the Northern States and Canada" is there any mention of the *Arbutus Menziesii*.

Truly the British Columbian *Arbutus* is a patrician among trees, and inevitably calls to mind Bret Harte's exquisite lines, penned to the *Madroño* of California:

"Captain of the western wood,
Thou that apest Robin Hood!
Green above thy scarlet hose,
How thy velvet mantle shows;
Never tree like thee arrayed,
O thou gallant of the glade!

"When the yellow autumn sun
Saddens all it looks upon,
Spreads its sackcloth on the hills,
Strews its ashes in the rills,

Thou thy scarlet hose dost doff,
And in limbs of purest buff
Challengest the sombre glade
For a sylvan masquerade.

“Where, oh where, shall he begin
Who would paint thee, Harlequin?
With thy waxen burnished leaf,
With thy branches’ red relief,
With thy poly-tinted fruit,
In thy spring or autumn suit,
Where begin, and oh, where end,
Thou whose charms all art transcend?”

MISCELLANEOUS SECTION

A FORTNIGHT WITH THE CANADIAN ALPINE CLUB.

BY GODFREY A. SOLLY.

The annual camp of 1909 will perhaps be remembered in the future for two main reasons. First, because of the glorious weather, and secondly, that it was the first occasion on which a party of climbers from the British Isles had been able to come out in response to an invitation sent to the Alpine Club of England. Writing as one of the British party, and on behalf of all, I wish to say at the outset of this paper that we feel that no words of ours can adequately express our gratitude for the unbounded kindness and generosity of our reception.

It was not only that Mr. and Mrs. Wheeler and the Vice-Presidents and Officers of the Club did so much for us, but we were made to feel that in every member of the Club we had a friend who was doing his or her best to give us a good time. Staying for a few days amongst so many strange faces, it was impossible to become acquainted with all, and one cannot even put the right names to all the faces that remain with us in our memories or on photographic prints, but to one and all we tender our most hearty thanks.

We have been present in the early school days of the Club—a child of great vigour and rapidly increasing stature, and there need be no doubt that it will do honour to its parentage. May it carry on faithfully the

great traditions that surround the Alpine Clubs of Europe, in its turn perhaps developing new features and expanding our knowledge of mountain craft; but, above all, may its members maintain the traditions of good fellowship—may it always be remembered that mountaineering is a recreation—that we learn our mountain craft and go to the hills for health and strength and pleasure—that it is wrong to court danger, but that if danger comes, no effort can be too great, no hardship too severe, if only disaster can be warded off.

No more enduring friendships than those of the mountains can be made. Twice I have spent a night out, in danger high up on the cliffs of a great mountain. Each time I knew that my companions were true men, who would be loyal while life lasted, and I count them amongst the most valued friends of my life. But I am now a member of the Alpine Club of Canada. Anyone who has been in camp with our President knows what that means: his orders are absolute. My orders lie open before me in a letter demanding a paper in connection with our visit to the Canadian Rockies. I would rather make my mark with an ice axe than a pen, but I have no option.

We were received at the delightful Club House at Banff on July 29th. We all took training walks on the hills around and hoped we were getting inoculated against future assaults by mosquitoes. The town authorities thoughtfully offered us a free sulphur bath, and the plunge into the hot water, though startling to those who did not know the temperature, alleviated the irritation temporarily. From the climbing point of view, the great feature of the place is the short cut to Banff along the pipe track. That walk for a quarter of a mile along a single plank about ten feet from the ground, was one of the most serious difficulties that I met with in the district.

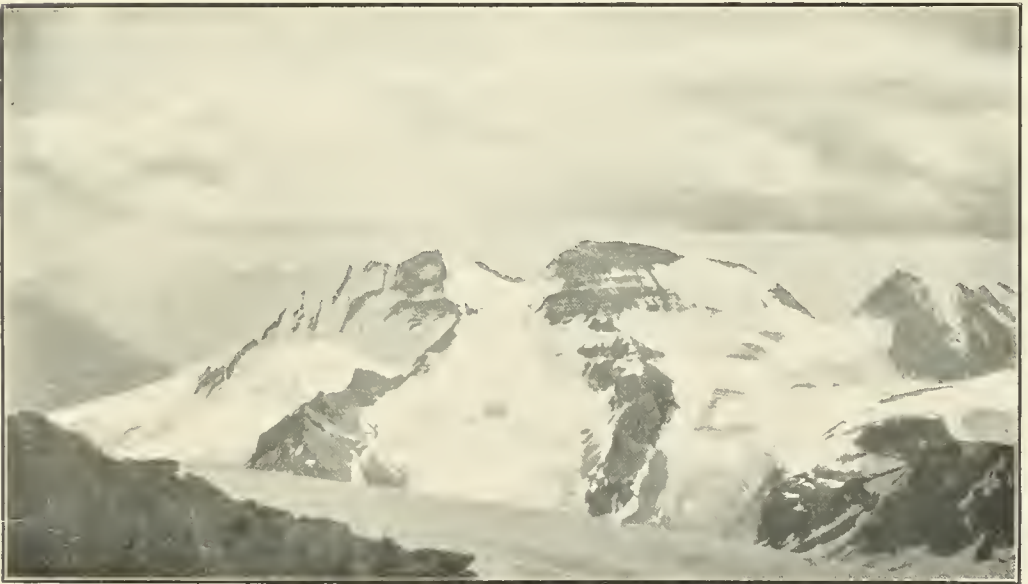
On the 1st August we all moved to the camp near Lake O'Hara and remained there until the 9th August. Others will describe the varied incidents of the camp life, so I will only give a short account of a climb on Mount Odaray, which has not hitherto been described in the Journal. On August 2nd, two parties, comprising five of the British visitors and V. A. Fynn, had made the ascent, and on the strength of their description, I started next morning with O. Rohde and A. C. Hargreaves. We followed at first the track towards Lake McArthur, seeing on the way a large porcupine, as it laboriously climbed a tree. Near the first little pool we turned to the right, i.e., westwards, and ascended the lower slopes of the mountain until we came to the edge of the glacier where we roped. From this point we circled round the lower peak of the ridge, avoiding some wide crevasses and ice cliffs and ascending gradually until we were under the lowest point of the ridge between the low east peak and the highest point. From here we climbed without difficulty by steep ice and rocks to the ridge, which is followed to the summit.

Presently we came to a depression in the ridge and opposite to us was a steep rock face with a very pronounced chimney holding a jammed stone. Hastings had told me the night before of a chimney with a jammed stone, as being the most difficult bit on the mountain, so we at once concluded that this must be the place and did not look for any way of avoiding it. We climbed it, the principal difficulty being to avoid sending down loose stones on those below, and thought our difficulties were over. Continuing along the ridge, to our surprise we came before long to another chimney, also with a jammed stone in it. We did look for a way of avoiding this chimney, but finding none had to climb it. It was perhaps less difficult than the lower one, but the stones were even more loose. From that point we soon

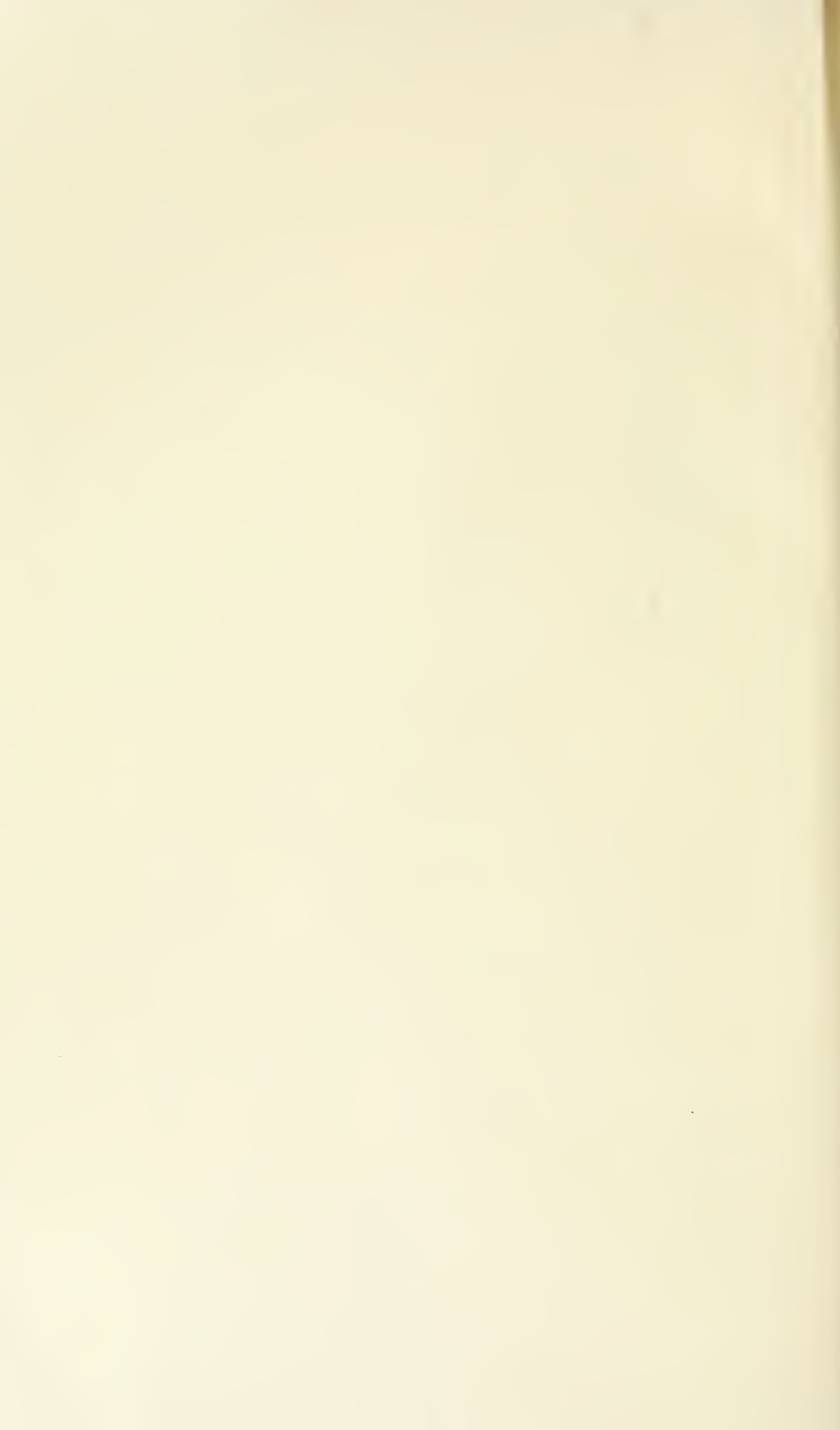


B. S. Darling. Photo

MT. ODARAY FROM THE CAMP



THE PRESIDENT AND VICE PRESIDENT
From Upper Yoho Valley



reached the summit—Hargreaves had ascended Mt. Huber on the previous day, but for Rohde and myself it was the first Canadian peak. I had often heard, but never before realized, the special feature of the view from a peak in the centre of the Canadian Rockies—that is, the enormous number of peaks in sight. In every direction, North and South, East and West, we saw glacier-clothed peaks in countless numbers, shining in the sun. Nothing that I know in the Alps resembles it; peaks may be more lofty there, and perhaps grander in outline, but there is not the same suggestion of boundless space. After staying for about an hour on the summit, eating luncheon and enjoying the view, we began the descent. The two chimneys were troublesome, particularly the lower one where the holds are not very good for the last man to depend on, but there was no other difficulty, and we soon reached camp. We then asked Hastings and the others about the two chimneys and were told that the lower one could be avoided by going a very short distance to the left, and that on the previous day one of the parties had descended by this easier route, and that both parties had ascended by it. However, we were not sorry that we had misunderstood their description, as it gave us the best bit of climbing on the mountain, and the descent in particular was very interesting. If the mountain is often climbed, the probability is that many of the loose stones will be cleared away, and it will become easy and safe, but the decision not to use it as a qualifying climb in 1909 was undoubtedly wise. It is no place for a number of parties to be on at the same time, and an inexperienced climber would hardly be able to avoid sending down loose stones, to the danger of those below.

I must pass over the glorious two days' trip to Paradise Valley and back, which was made by many of the British party, including three of the ladies. As

taken in the reverse direction, it has been well described in the *Journal* for 1908.

I will only refer to the Eagle's Eyrie. Whilst a Vice-President and some of our party were sleeping in the sun, I had a look at it. There is a crack on the southerly side that looks as if it would go, but when one gets up a little, the holds seem all in the wrong places, and the rock pushes one out. Then perhaps the thought will come to a climber that he is not in very good training just now, and that it would be better to try some other day. Finally he will get down, which is the only sensible thing to do. The game is not worth the candle.

THE YOHO TRIP.

But the most attractive feature of the entertainment provided for the British party was the trip in the Yoho Valley. Amery, Hastings and Mumm had left the annual camp on the Friday to go to Mt. Robson, but the rest of the climbing members of the party, reinforced by A. M. Bartleet, were invited to spend the next six days in the Yoho Valley, changing camp each day. A party of thirty-two was formed headed by our President, and including most of the British visitors and three of the guides. The United States were represented by Miss Vaux, whose cheerfulness in putting up with the little inconveniences of camp life and readiness to give a hand whenever needed, charmed all, and contributed much to the pleasure of the trip.

On the first day after descending from Lake O'Hara, and lunching at the depot camp near Hector Station, we rounded Paget Peak and, having passed Sherbrooke Lake, camped in the woods at the furthest point that the ponies with their heavy loads could reach. Next day everything had to be carried over the pass west of Mont Niles, and across the Daly Glacier to a high camp on the rocky slopes nearly due north of the snout of the glacier

—a photograph by Mr. Harmon shows twenty-seven of the party on the ice with their loads. The remaining five were the photographer himself, the Rev. J. R. Robertson, Bartleet, Hargreaves and myself. We four left the others at the pass and traversing on the snow slopes under Mt. Niles reached the rocks on the south-westerly side of Mt. Daly. Here we were caught in a violent thunderstorm. The lightning seemed very near and our axes were all hissing, so we left them for a time in the snow and waited on the rocks until the fury of the storm had passed. Then picking them up, we mounted the rocks, which are easy, and, walking over the summit plateau of snow and shattered rocks, soon reached the highest point. We had no very distant view, but the cloud effects as the storm was passing away were very grand. On the descent we varied our route down the rocks which can be climbed almost, but not quite, everywhere, and then picking up our loads, which had been left below, made the best of our way to the camping place. The mountain is a very easy one, but on the snow slopes under Mt. Niles there are some crevasses and the rope should always be used. At camp, we had a mixed reception. Robertson had been complaining of the weight of his load, which he thought contained only bacon, but some friend had also put in it all the tea, so the rest of the party had had nothing to drink except water—hot or cold—until our return. Some actually complained of our thoughtlessness in going away with the tea, when we would have given them not only the tea, but the bacon and all our loads if they would have taken them. Others more practical at once made tea, which was acceptable to all, for it was cold and wet and the camping place exposed.

On the next day a party of about fourteen, including the three British ladies, made a successful ascent of Mt. Balfour, but again we had no distant view from

the summit. There was a high wind and drifting snow. In the meantime the rest of the party had moved camp to a beautiful spot near the foot of the Wapta Glacier. Here the ponies met us again. On the next day the President took some measurements of the ice movement of the Wapta Glacier while the camp was moved a short march to a point in the Waterfall Valley. On the next day sixteen of the party, including only three of the visitors, Bartleet, Rohde and E. F. Pilkington, had a very long day over Mounts Habel and McArthur while most of the others walked to the top of Kiwetinock Pass, and had a view westward over mountains, which few except the President have visited. On the following day a large party of four ropes, including three ladies, had a long day on Mts. President and Vice-President, to the next camp which was at Yoho (Summit) Lake. Most of the climbing was easy but there is some good scrambling on the northern ridge of President, access to which is gained by one of several steep chimneys. The final descent from the foot of the glacier through the forest to the lake was hot and tiring. There may be a path but our leaders did not hit it off. The next day all went down to Field. Oliver Wheeler and one or two energetic young men took Mt. Burgess on the way, but most strolled down the path to Emerald Lake, where after a civilized luncheon at the hotel, carriages came and we were driven down to Field. The whole party reunited at the hotel and enjoyed a farewell supper together, rather to the astonishment of the other guests. Toasts were drunk and speeches made and episodes of the trail recalled, till we were told that it was 10.30 p.m. and that our places were wanted for travellers just arriving off No. 96, due twelve hours earlier.

So ended a glorious week, and we separated, some going off that night, others next day or the day after, but we hope to meet again in other years. Whether

that may be possible or not we know that we are richer by the memory of a week where all went right and nothing went wrong. East knows West and West knows East a little better than before, and we trust that the friendships begun among the mountains in search of recreation only may be a tiny link in the chain that binds together one great Empire.

I was asked to write a paper on the mountaineering done by the British visitors, but I cannot write of what I do not know. Others must tell how Amery, Hastings and Mumm travelled to Mt. Robson and were only beaten on it by the bad weather; and of how Fynn led Pilkington up Mt. Ringrose and Bartleet up the N. W. arête of Mt. Sir Donald. On the morning after the supper, I started at about 4.30 a.m. with the Rev. A. M. Gordon and Bartleet and Pilkington to try Mt. Cathedral. We did not then know of the two climbs described in Outram's book, and the only advice we could get was to walk along the line eastwards until we had gone through the tunnel and then turn up towards the mountain. This we did and found ourselves on fatiguing scree slopes which continued almost without intermission over the small glacier to the pass between Mts. Cathedral and Stephen. Long before we reached the pass we knew that we were wrong, but there was no time to go back and begin elsewhere, so we went to the other pass and looked over to see if we could find any way of turning the southerly end of the hopeless wall of rock that had flanked us on the left for so long. We climbed a short way up the ridge, but saw that to go on was useless. We then decided to go down the other side of the pass knowing that we should strike the O'Hara track and so make a tour of Mt. Cathedral. The south side of the pass is perfectly easy. The scenery is superb and the precipices on the north-westerly face of Mt. Odayay are most imposing. There is, of course, no path down the

valley, and we had the usual struggle through the forest until we reached the track, but this did not spoil the pleasure of an interesting day. When we got back to the hotel, we heard that we ought to have gone further along the track before turning off it, for the beginning of the ascent, and that by so doing we should have reached the glacier coming down from the N. W. of the mountain.

After this, I was obliged to go to the Chalet on Lake Louise where I stayed for five days. Unfortunately I had no male companion, the guides were all engaged and I could find no climber amongst the visitors, so the only climb that I had there was the ascent of Mt. Niblock with Mrs. Solly and Miss Maclay. Then I had to travel east for England, home, and duty. My holiday was at an end, but a dream of many years had been realized. In 1893, I had hesitated whether to go east to the Caucasus or west to the Rockies—but in those days the journey east was the quicker and more certain of the two and I chose the Caucasus. Now much is changed, and on the tenth day from London one can be on a Canadian glacier, whilst the journey into the Caucasus is no more easy than it was, and the uncertainty as to getting out of the country is so great, that it is reported to be not worth while for a traveller to take a return ticket. My dream now must be of a second visit to Canada. May it be far less than sixteen years before I see again the mountains and meet the friends of 1909.

TWO ENGLISHMEN IN THE YOHO VALLEY.

BY E. F. M. MACCARTHY AND A. M. BARTLEET.

"Great things are done when Men and Mountains meet;
These are not done by jostling in the street."

—William Blake.

The domesticated dog still takes two or three turns round to flatten the prairie grass before he curls himself up upon your carpet; and the domesticated man still has lurking in his being a remnant of the barbarism which makes him revolt occasionally against the life of the city and the crowded struggle of the streets, and which sends him out to the waste places of the world where God's air is at all events untainted, and where he may return to the primitive way of living. The inherited impulse is valueless to the dog, but it has made of man that noble specimen of his race, the Climber.

It was this evolutionary instinct shared by two otherwise dissimilar Englishmen—MacCarthy, a septuagenarian, and Bartleet, young enough to pass for his son, the one a schoolmaster, the other a barrister, which made them jump at the invitation of Mr. Wheeler, the President of the Alpine Club of Canada, to join his party for a week's camping out in the Rockies. So it was that, singing to ourselves—

Fare ye well, stiff-laundered shirt-fronts,
Cuffs of starched and courtly whiteness,
Black dress-coats and silken stockings!

we found ourselves, on an early day in August, 1909, being whirled away by iron-horses westward from Winnipeg (whither the British Association Meeting had drawn us), across eight hundred miles of almost level

prairie to the foot-hills of the Rockies, and then up and up, for two hundred miles more, between sombre sentinel pines and gleaming silvery waterways, through mountain gorges and under steep cliffs epauletted with lumber-roofed snow-tunnels, till we crawled up to the Great Divide, and, a few miles further on, reached the water-tank (glorified under the name of Hector Station) where our puffing and panting horses stopped to quench their thirst. Here we stepped out of the Hotel-upon-wheels in which we had lived for the last 36 hours, and at noon, Monday, August 9th, bade good-bye for a week to the ordinary routine of civilized life as we made our way through the trees, under the guidance of one of "the Boys" (as the younger members of the A.C.C. are called) who had been told off to meet us, and found ourselves at the Club's base Camp hard by.

It had been arranged that we should there await the arrival of Mr. Wheeler and his party who had been camping out the previous week at Lake O'Hara. They soon arrived in two's and three's, and we were greeted by a few old English friends (who had received a similar invitation to ourselves) and a larger number of those who were soon to become new ones. We shared in an excellent and cheery meal and then returned to the station to change into mountaineering kit. Here the Vice-President, Mr. Patterson's description of the climbs planned for the first two days decided the "Old Man" (as he was irreverently styled by the Boys) not to attempt the Sherbrooke Valley part of the trip, but to go down to Field, wait for the return of the pack-horses and come up the Yoho Valley with them on Wednesday, so as to join the rest of the party at the Glacier at the head of the Valley.

Here follows Bartleet's narrative of his experiences:—

About 3.30 p.m. we started, a party of some thirty-six persons, up to the Sherbrooke Valley—a comparatively little known way of approach to the Eastern slopes of

the Yoho Valley—and Mr. Wheeler told me to run on and catch up to the pack-horses (that had already started while I was changing at the station house), and relieve myself of my rucksack. I may say at once that I did not “run” very far, and was doubtful for a time if I should ever catch the horses, this being my first experience of a forest trail which often seemed as conspicuous by its absence as the underbrush did by its presence. However, after half-an-hour or so I did overtake them and then began thoroughly to enjoy myself.

Otto, the Club’s Master of the Horse, was some way ahead in front of the string of horses, but his Equerry, Jimmy Simpson, riding last, proved a most entertaining and instructive companion. His control over the animals struck me as wonderful. When one of them went wrong he rated it, either by its individual name or by names (also used in England) of more general and forcible application; and the offender always returned promptly to the trail. At one point, a horse got stuck near the top of a steep and slippery pitch, and after many unsuccessful efforts to pull him up Jimmy said there was nothing for it but push him down. The poor brute fell a considerable distance and landed with his pack beneath him and legs in the air. He was soon righted, however, and then got up the pitch safely; but we both agreed that it had been odds he would break a leg in that fall.

About 7.30 we reached our first camping ground, a mile or so above the beautiful Sherbrooke Lake; and after an excellent supper the English guests passed a most comfortable night in a well brushed-down tent. Next morning, Tuesday the 10th August, we breakfasted about 7 a.m. By 10 o’clock camp was struck and everything packed, and we started in detachments on the walk up the Sherbrooke Valley to the pass at its head, immediately west of Mt. Niles. It was now that I realized for the first time the full extent of the generosity of our

Canadian hosts. This day and the following we were to traverse a trailless country impossible for the pack-horses, which were already making their way back to the base camp at Hector and so on to Field; and our hosts themselves carried on their back the whole camp and accessories—tents, cooking apparatus, axes, and food for nearly forty people—in fact, the whole outfit, besides their own personal requisites and those of some of the guests. The loads were simply staggering; not indeed to the bodies of those who bore them, but to the feelings and imaginations of the others; and the thought, not only that this tremendous work was undertaken during their short holiday, but that it caused our unselfish friends to miss making the ascent of the mountains they would have loved to climb, indeed touched the hearts of all us English. Perhaps by way of expressing my own gratitude to the President, Vice-Presidents and the Boys, I cannot say better than that I value the memory of the week I spent with them more highly than any other of my mountaineering experiences, albeit these reach back to a time more than twenty years ago; and I may add that, had I missed those first two days, I should ever after have felt much regret, save only for the fact that in that case the loads would have been a little lighter.

Between mid-day and 1 p.m. the whole party were sitting on top of the pass; and to my joy Mr. Solly kindly asked if I would come with him and try Mt. Daly. Of course I jumped at the suggestion, and under his leadership, Mr. Robertson, Mr. Hargreaves and I, left the pass behind us, skirted the rocks of the ridge running up from it in an easterly direction, and crossed the snowfield at the head of the Daly Glacier towards the rocks of the final peak. On the most exposed part of the plateau, a magnificent thunderstorm broke upon us, and we hurried on to the rocks ahead where we should be less conspicuous objects and less likely to be struck by the lightning.

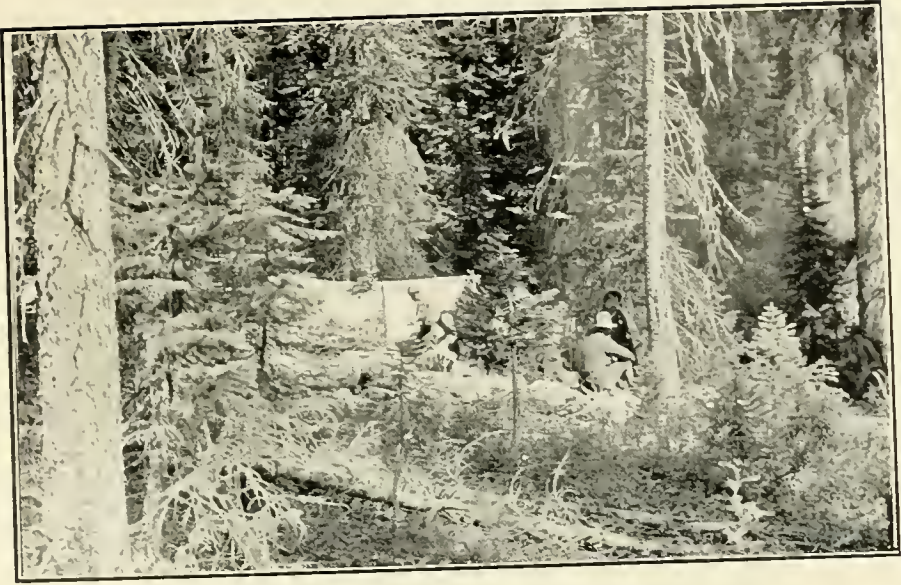
Here we sat for some time, our minds divided between admiration of the storm and fear that it would cheat us of our peak. Never have I seen anything grander nor felt more deeply the awfulness of Nature. We were fairly high up and the view was extensive. Sometimes we seemed to be in the very heart of the storm, to be part of it, so to speak; then the lightning would flash far away in the East, and then again would glorify the Southern or Western horizon. Perhaps there were several storms taking place at the same time. Apart from the lightning, the effects of light and shade were more beautiful than any I have seen; and there was a rainbow towards the East that Turner himself would hardly have dared to paint.

Well—the storm passed; the rocks were easy and the final snow slope short; and we stood on the summit of Mt. Daly at 4 p.m. The view gave us all intense pleasure, and, for me, recalled my feelings when in August, 1888, I stood on the top of my first snow mountain—Piz Morteratsch in the Engadine. In each case I was taking a bird's-eye view of an entirely new country of which I had thought much beforehand—in perfect contentment, satisfying what had become almost a craving; and if in the former year my excitement was greater, I think that now a more mature experience allowed the pleasure to be deeper. If asked to compare the Swiss and the Canadian scene, I might perhaps say that from Mt. Daly, (and three days later from Mt. Habel) the range of the Rockies seemed to stretch endlessly and without a break in all directions, whereas from a Swiss summit one nearly always sees or suspects a plain or a fertile valley and so gets the suggestion of humanity and civilization. Perhaps Mr. Whympers had this effect of endlessness in his mind when he wrote that the Rocky Mountains are like "fifty Switzerlands rolled into one."

We made the descent without adventure or misad-

venture in some three hours, reaching camp No. 2 about 7.20 p.m. The expedition was delightful; and though the mountain presented no special difficulty, the facts that none of us had seen it before and that the succession of thunderstorms rendered success very doubtful added to the pleasure of achieving the summit. We found the new camp pitched on an ideal spot—a grass plateau at timber-line, near the right side of the ice-fall of the Daly Glacier, commanding glorious views of the “Vice-President” and other mountains across the Yoho Valley—that beautiful valley of which I had read so much and which I was now to visit under such good auspices. We had been wet through and dried again by the sun several times during the day, so it was not unpleasant to get inside a tent just in time to escape a final downpour.

On Wednesday, the 11th, a party of twelve, including the three English ladies, left camp at 9 a.m., intending to climb Mt. Balfour. We traversed in a Northerly direction, well above timber-line, the higher slopes of the Yoho Valley, and ascended a moraine at the top of which we roped up in three parties of four. We then crossed a snowfield, surmounted the bergschrund without much difficulty, walked up the snow slope of the final peak, and reached the summit at 1 p.m. As a contrast to yesterday, clouds now robbed us of our view. We left the summit at 1.30, and reached the top of the moraine, where the sacks had been deposited, at 3 p.m. From here we continued the traverse in a Northerly direction of the upper slopes of the Yoho Valley to a point very near its head, whence we started an extremely steep descent to the glacier-stream below, forging our way through very dense undergrowth. We soon saw the smoke of Camp No. 3, rising through the trees across the valley, and apparently within a stone’s throw; but as the river seemed too deep to ford, we made a detour over the snout of the glacier, which we crossed with the help



Val. A. Fynn, Photo

CAMP III, YOHO EXPEDITION



Val. A. Fynn, Photo

GETTING A MEAL READY



Val. A. Fynn, Photo

CAMP IV, YOHO EXPEDITION

of some well-cut steps, hit the trail on the other side and reached the Camp at 7.15. This Camp again was most beautifully situated, lying in a little clearing in the forest; and as I lay on the grass watching the scene round the fire and my eyes half closed, I either fancied or dreamed that I was about to witness the performance of some ancient Druid rites. But the Arch Druid suddenly changed into MacCarthy, who had just come up from Field with the pack-horses; and the only rites performed were shakings of the hand, and almost immediately, the consumption of a first rate supper.

On Thursday, the 12th, being glad of an easy day, a few of us followed Mr. Wheeler and his son, and watched them making their annual measurements and observations of the Yoho Glacier. Its snout was found to have receded at the rate of about 30 feet a year during the last three years; and Mr. Wheeler pointed out a line of logs lying at a considerable distance from the present position of the ice and indicating its limits years ago, when an avalanche from the heights above must have carried down the trees, which were only brought to rest by impact against the Easterly side of the then more extensive Glacier. In the afternoon we walked through the forest to Camp No. 4 which had been pitched near a beautiful lake a little below the Twin Falls. Although my expectations had been pretty high they were more than realized when I gazed with admiration on these wonderful falls. Were they in Switzerland they would make the fortune of half-a-dozen hotel companies. Pray Heaven that this neighbourhood may never be so profaned.

On Friday, the 13th, at about 6 a.m., a party of sixteen set out to climb Mts. Habel and McArthur. A way was found up the impregnable-looking cliff over which the falls hurled themselves on our left. The pace was tremendous, and one was glad of a short breather after

an hour or so of extremely steep and rapid walking. We now looked down upon the falls and the view above began to open out. The Glacier was soon reached, and about 8.45 a halt was called on the snowfield above, photographs were taken, and we roped up in four parties of four. The snowfield was a long one and eventually increased in steepness, and as I had anticipated, we fairly raced over it. Indeed one felt grateful to the bergschrund that caused a little delay after over an hour and a half of going at high pressure. Skilfully led, we crossed it without much difficulty, Mr. Harmon from the lower lip taking photographs of us in transit. Another steep though short pull, and we reached the little snow col at the foot of Habel's final peak, where we unroped and left the sacks; and then a walk of twenty minutes up the snow (each at his own favourite pace) brought us to the summit at 11.20 a.m. This was the view I had looked forward to most eagerly since deciding to come out to the Rockies and reading the books of the pioneers. My expectations were again surpassed. Mt. Mummery was close at hand; the Selkirks, amongst which I should soon be, lay to the West, the peaks we had recently climbed to the East, and to the North Mt. Forbes and that boundless ocean of mountains which appeals so strongly to the imagination. The weather was perfectly fine, and that half-hour will never fade from memory.

Plenty of work was still before us, so we tore ourselves away, lunched on the little snow col and about 12.30, started off in the direction of Mt. McArthur. Those on the three first ropes took to the snow on the west side of the southerly ridge of Mt. Habel; but Konrad Kain, the enterprising guide in charge of our rope, seeing a chance of an interesting rock climb, took Messrs. Harmon, Pilkington and me along the ridge itself, which terminates in a minor peak that provided some enjoyable rock work. We reached the top about

1.30 and at first looked in vain for the others. Before long, however, we distinguished them far below us on the snowfield that lay between our minor peak and McArthur. We descended to their level by a glorious glissade, long, steep and safe, followed in their tracks across an interminable stretch of snow, and joined them at last waiting for us at the foot of Mt. McArthur.

It was now about 3.20. On this side the mountain presented a fine rock arête, and the first parties, after prospecting some time for a route, decided to take to the screes on the right or Western side. Konrad, however, thought he detected a sporting rock climb to the left, which if feasible would lead more directly to the summit. He was let out to the full length of the rope, which was just long enough to enable him to cross a smooth slab of rock with almost imperceptible holds, and reach a place of secure anchorage. Pilkington and I followed in our turn, and were glad to know there was one above in whom we could put our trust. There was a remarkable similarity between this slab and the "Nose" on the North climb of the Pillar Rock in Cumberland, in each case faith being the virtue most needed by the leader. After this the arête itself gave good, interesting climbing, but had finally to be left for fear of sending down stones on the parties below. Traversing to the left, a nasty piece of loose earthy scree on the top of smooth rock was encountered, the hand holds being few and rotten. Fortunately on this side the ridge it did not matter how many stones were dislodged, and in time sounder rock was reached and the summit attained about 4.50 p.m. The other parties arrived only a few minutes later; so they must have climbed with great rapidity by their less direct route.

The half hour spent on this summit was again very delightful. Owing to the lateness of the hour the colouring was beautifully soft, and the mountains around the

site of the O'Hara camp towards the south, for some reason or other, seemed surprisingly near. The descent was quick and easy. We unroped at the foot of the Glacier at 6 p.m. and reached Camp No. 5 half an hour later. The expedition had been an exceedingly fine one, of a very high order of interest and variety; and it will hold a position all by itself in my memory.

The Camp, situated at the head of the little Yoho Valley exactly below Mt. President, was a very welcome sight, and not less welcome was the splendid supper that had been prepared for us. In particular the soup was a veritable masterpiece, and for all the world reminded me of the Bouillabaisse that one enjoys so much on the French Riviera. Over my second or third helping Thackeray's appropriate lines suggested themselves:—

“Indeed a rich and savoury stew 'tis;
And true philosophers, methinks,
Who love all kinds of natural beauties,
Should love good victuals and good drinks.”

Kind thanks to the cook, and to the perfect organization whereby, with never the least sign of a hitch, a comfortable camp, excellent meal and hearty welcome invariably greeted those descending from a mountain.

On Saturday, the 14th, the self-sacrificing President and Vice-Presidents for the first time during the week allowed themselves the pleasure of an ascent, and they took a party of some eighteen persons, including the three English ladies, for what must have been a most interesting (and certainly a very fitting) expedition, namely, the traverse of Mts. President and Vice-President. For myself I was glad of a less strenuous day, and greatly enjoyed walking with MacCarthy to Camp No. 6; after watching the old camp being broken up and the horses loaded.

Rounding the lower slopes of the “Vice-President” the route lay well above timber-line, and beautiful views

were obtained down the Yoho Valley, on the opposite side of which the celebrated Takakkaw Falls were seen to the best advantage, with their remarkable rainbow caused by the sun shining on the spray. After two or three hours of rather rough walking a steep grass slope brought us down to an excellent trail, which was followed to the last camp, alongside of Summit Lake. The torrents crossing this trail were swollen through the mid-day sun, and into one of them MacCarthy, slipping on a boulder, fell. With great ability he scrambled out of the water; and having the heart of a boy for all his seventy years, he treated the episode as the best joke in the world. Nor did he fail to amuse the rest of the party when he issued from his tent later on, his lower man encased in a sleeping bag, as if the programme of the evening festivities was likely to include a sack-race. What it *did* include was a concert round a roaring camp fire, when songs were sung, speeches made, good stories told and interesting adventures related. One perhaps specially remembers Mr. Fynn's account of the heroic behaviour of Miss Gertrude Bell, when caught by terrible weather, she and her two guides (the brothers Fuhrer) spent two nights high up on the Finsteraarhorn; and the modest speech of our good cook, Mr. Alldritt, in which he told his experiences in the South African war, when he went with the Canadian contingent to the help of the Old Country in the time of her strain and stress.

Here Bartleet's narrative ends. It needs supplementing by a few more words from his companion.

As the Summit Lake was the last of our camping-grounds, and the party had only to work its way down to Emerald Lake and on to Field on the morrow, the fun was kept up till a late hour; but at last we groped our way to our tents. We had just fitted ourselves into our allotted spaces, like sardines in a box, when the President, followed by the Vice-President, came to our tent,

the President carrying his private flask of "medicine" (we were a strictly temperance Camp) and the Vice-President with a rug, the one to offer the "Old Man" a warming cordial, and the other, to tuck him up in an extra blanket; in case his cold bath had given him a chill. Their kindly urbanity deserves, and here receives, warm and cordial recognition.

Next morning out tents were folded for the last time, and, in single file, we dropped down by a zigzag trail through stunted brushwood on to a muddy, stony floor at the extreme western edge of which, glistening in the sunlight, lay the shrunken waters of Emerald Lake which once must have covered the whole of the plain. Rounding the northern shore of the lake we came upon the Chalet Hotel—a tourist resort of the normal type. In our haste to make sure that we had really returned to civilization, the Englishmen gave a large order for beer and cigars—quite forgetting that we were still the guests of the Canadians. However, our hospitable hosts would insist upon paying for what we had ordered, and all we could do was to apologise humbly for the lapse into bad manners into which our eagerness had hurried us. By the way, talking of manners, the only bad manners we came across in Canada were imported by ourselves. On one occasion in a Railway Dining Car, McCarthy shouted to the attendant at the other end of the Car, "Waiter, another plate," whereupon the waiter came up to his side and whispered in the gentlest tones, "Say Please." The missing word was promptly forthcoming, and the Englishman received with humility, not unmixed with amusement, the plate he had asked for and the reproof he had deserved.

But to return to our story. After a sumptuous lunch, eaten with as keen an appetite as Shackleton and his men must have had when they returned from the South Pole to New Zealand, waggonettes came round and carried

us off along a well-made road, canopied for several miles by an avenue of pine-trees, to the Mt. Stephen Hotel at Field, where we arrived at 5. So ended our visit to the Alpine Club of Canada but the English guests were naturally bursting with desire to show their appreciation of the kindness and consideration they had received, and to relieve themselves, as far as they could, of the burden of obligation which lay heavily upon them. So the tables were turned for a few hours that evening, and we became the hosts and the Canadian Alpine Club our guests at a dinner which Mr. Flindt, the courteous manager of the Mt. Stephen Hotel, exhausted his resources to supply.

After dinner, a flood of oratory poured itself forth with the rapidity of the Kicking Horse River; but, as no reporters were present, there are several deplorable gaps in the record of the speeches delivered. Prof. Dixon, of Manchester, occupied the Chair, and proposed the toast of the evening, "Our Canadian Hosts" which was gracefully responded to by that prince of hosts, the genial President of the A.C.C. Other toasts followed—that of "the Boys," proposed by Mr. Solly and responded to by Messrs. Bridgland, Alldritt and Ballentine; that of "the English Guests" proposed by the Vice-President and responded to by Messrs. Dixon and MacCarthy. Dr. Benson, of Dublin, when called upon to speak in response to the toast of the "English Alpine Club," with genuine Irish humour admitted the appropriateness of his selection to respond, seeing that he was not an Englishman, and not a member of the English Alpine Club. Mr. George Smith, one of "the Boys," a Rhodes Scholar, shortly to enter as an undergraduate at Balliol College, Oxford, naturally felt qualified to propose "the Ladies" as he was so soon to be a devotee at the shrine of Minerva.

The "Old Man" has completely forgotten what he

said in response to the toast of the "English Visitors," but he knows what he would have like to have said then, and what he would not like to leave unsaid now. "We English visitors have had a most delightful time, and are overwhelmed with feelings of pleasure at the grand mountain scenery to which we have been introduced through the kind invitation of your President, and of gratitude for the unbounded hospitality which has made our visit so agreeable. Believe me, I am not gasing. On this Continent you are familiar with natural gas; and, if gas at all, mine is natural gas—naturally arising out of the emotions which you have evoked. We have had perfect weather, (barring the one thunderstorm), have revelled in perfect health and spirits, and have been companioned, waited on, and catered for by the most cheery and good tempered fellows it has ever been our lot to meet.

"The scenery through which we have passed has been quite a revelation. Artemus Ward, humorously patronizing Dame Nature for the clever way she had done her crumpling to produce the Rocky Mountains of the American Continent, gives her the testimonial—"The Rockies are a great success"; and so they are. While the earth's molten crust was slowly cooling, She must have dexterously puckered here, pleated there, crimped in one place and craped in another with a far-seeing eye to the general effect when it should have solidified—hollows not too deep, and heights not too steep to depress with their inaccessibility the enthusiasm of all but the most stalwart climbers. And Artemus Ward's verdict is just that which the English climbers familiar with Switzerland's deeper valleys and steeper heights, conspicuously endorse—"The Rockies are a great success." And our visit to them has also been a great success, thanks to the kindly skies we have lived under, the kindlier rocks we have met with, and the kinliest hearts which have greeted us during the past week.

“Emerson says of the mountains—

“Hither bring

Our insect miseries to the rocks ;

And the whole flight with pestering wing

Vanish, and cease their murmuring.

Vanish beside these dedicated blocks.”

These ‘miseries’ of our working life—how true it is that they are mere ‘insects’ compared with the mammoth delights of our week in the Canadian Rockies.

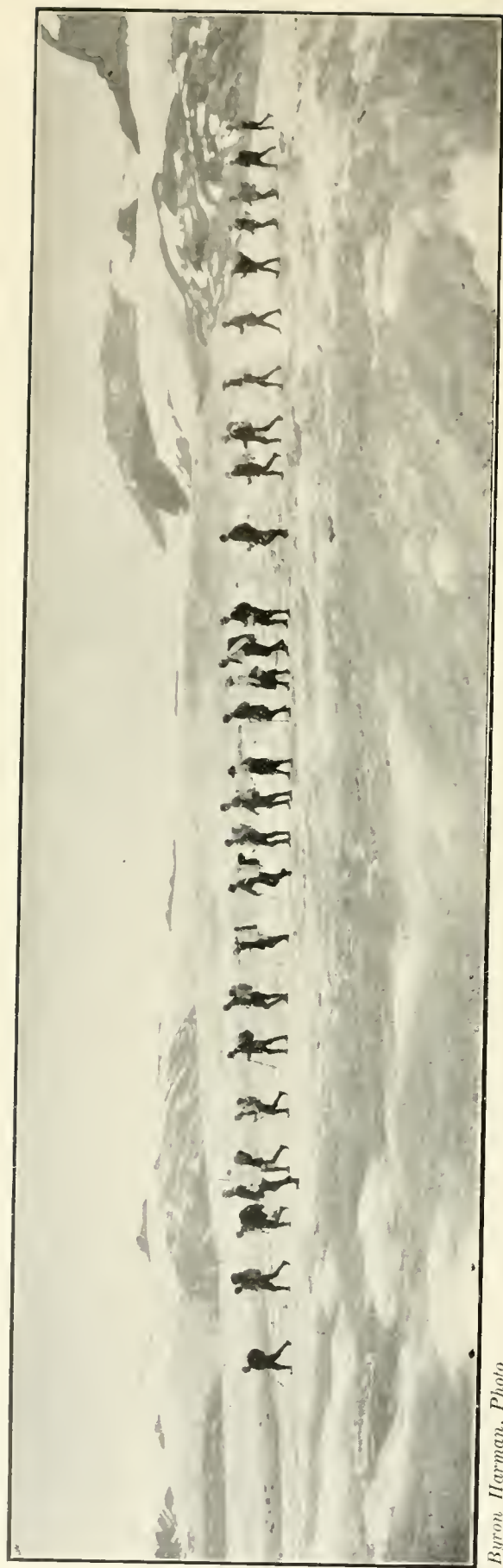
“Members of the Alpine Club of Canada, from the bottom of our hearts we thank you, and our parting words to you are “*Vivite et Valet.*”

A GRADUATING CLIMB.

BY ETHEL JOHNS.

It was the *Alpine Journal* that did it. Journeying peacefully along the sunny Portage Plains in the train one day a copy lay beside me belonging to a fellow traveller. It fell open at a page showing "The McTavish" scaling a giddy precipice on Crows' Nest. Further along was an article describing some climb which ended with the magic sentence—"We had been out fourteen hours." I drew a long breath, suddenly I was wearied of "the great spaces washed with sun" and remembered the Rockies as I had once glimpsed them, eighty miles away, a fairyland of rose and grey and silver. The one desirable thing in life seemed to be to climb Crows' Nest and to be out fourteen hours.

So it came to pass that one glorious August morning a very scornful porter deposited me and my possessions on the platform at Hector among a crowd of people all talking at once and engaged in dragging their own particular dunnage out of a pile almost high enough to constitute a qualifying climb. This mountain was regarded with extreme disfavor by the pack train officials, who evidently considered my modest addition to the heap as the proverbial last straw, and were openly dubious of my sworn statement that it weighed only forty pounds. I must confess that at this particular moment I never felt more lonely in my life. The air was full of shouted greetings and reminiscences in which I had no part, but presently two of the lady members came over to me and told me that a party was going to walk out to



Byron Harman, Photo

CROSSING THE DALY ICEFIELD ON THE YOHU EXPEDITION

camp in a short time and were so good to me that I took heart of grace again.

While we were waiting one of my long cherished dreams came true. I saw a Swiss guide in the flesh. So many of one's dreams are spoiled in the realization; but that Guide was, as the Virginian puts it: "better than I dreamed." He wore the official badge on his coat lapel. He even sported the Tyrolean feather. His boots were as thick and full of nails as I had hoped. He carried an ice-axe, a rucksack and a coiled rope. I walked round him at a respectful distance and regarded him from every angle. He was a most satisfying person.

Presently there was a gathering of the clans and a start was made. Such a morning! All blue and silver and deep green, and not a sound but the rush of the torrent over the broken boulders. Far ahead strode the guide of my admiration followed by a select party who were going to make a "quick trip." I wished I had gone with them and not stayed with these people who trusted themselves to an irresponsible individual who didn't look like a mountaineer at all and whose slogan seemed to be "Hop along, Sister Mary, hop along." The ascent began to grow steeper. I began to feel awfully queer, as though some one were sitting on my chest. I decided this must be the result of transporting myself from seven hundred feet above sea level to six thousand and then indulging in physical exercise. It was a very disagreeable sensation. A kindly individual with a handkerchief gracefully draped over the back of his neck noticed my distress and suggested that the party halt as he was tired. I sank down on a log and made noises like a dog who has been chasing a rabbit. This was my first experience of Alpine chivalry. For some strange reason it is always the strongest member of the party who gets tired first. Just as the weaker ones are praying for death as a relief from their sufferings one of the strong ones who could go all

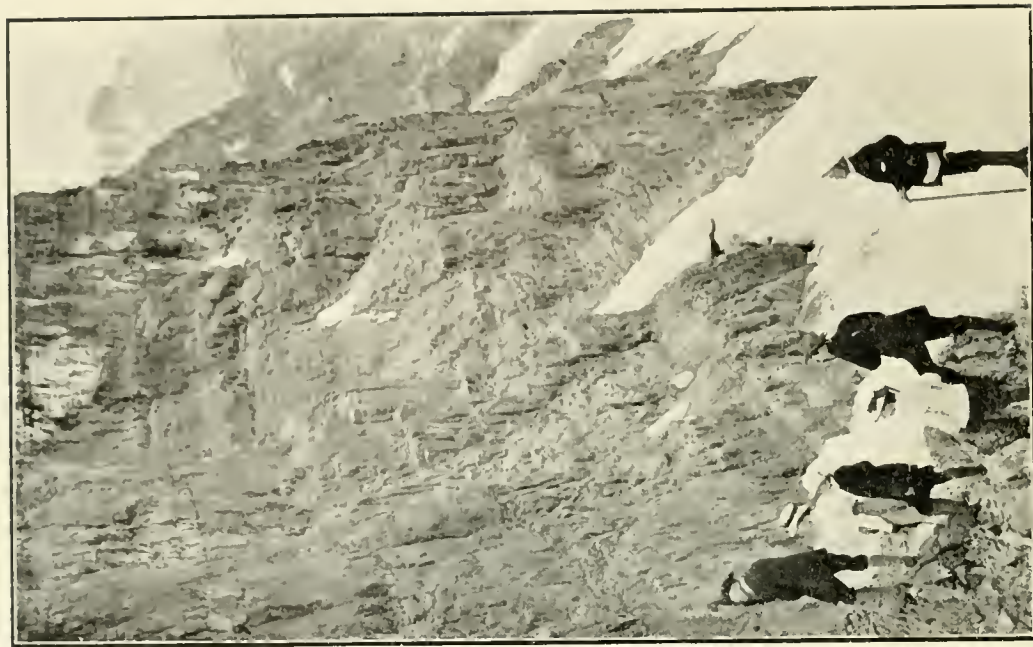
day without stopping, suddenly discovers that he is quite exhausted, in fact, cannot go another step. This condition of affairs terminates abruptly when the weaker vessels have got their breath and are beginning to take some interest in life once more. This power of getting suddenly and unaccountably tired increases in direct proportion to the number of difficult climbs made by the individual concerned—or, in other words, the better the climber the more sympathy he has for those weaker than himself. Which after all is what one would have expected. It was at this juncture that I discovered that the irresponsible one whom everybody addressed as "P.D." was really half of the McTavish entity. It was rather a disillusion. He was not dressed as I imagined a mountaineer should be. But apparently clothes are no criterion of mountaineering. The real celebrities don't bother with frills. They often scorn artistically adjusted puttees and tie their trousers round their boot tops with a bit of string instead. They wear fearsome sweaters and shocking bad hats. So much for the modesty of true greatness.

The trail was not to be without adventure for me. After my rest I started out like a giant refreshed and presently came to a torrent bridged by a log of somewhat slender proportions. Over they all went like a flock of mountain goats. That is to say—all except me. I stopped half way. In fact I wallowed in that torrent. It was not deep but I made the most of it, and emerged therefrom looking more like a muskrat than a human being. It was not very comfortable walking in wet clothes and when at last we did reach camp I found that my outfit was left behind at Hector. There was nothing for it but to drape myself about in blankets and seek the chaste seclusion of tent number five while my clothes were sent to the cook tent to be dried.

It is useless to attempt a description of the camp at Lake O'Hara. Those who were there need no descrip-



Howard Chapman, Photo
MTS, HUBER AND VICTORIA



Howard Chapman, Photo
CLIFFS OF MT. HUBER
From McArthur Pass

tion. They have but to close their eyes to see again that mountain meadow, starred with ling, flaming with painter's brush—its rows of white tents, the shining Adonis pool and all about it the snowy hills of God.

After all my most vivid abiding memory is of the day on Huber. The side trips had helped my wind considerably and had given me some experience of scrambling, so on Thursday evening my name figured among a large number of others who were to attempt Huber on the following day. Sleep did not come easily that night and it seemed a long time before I heard the President's voice, repeating the well-known formula—"It is now five o'clock, if you are not ready in an hour's time the party starts without you." On this particular morning he added a corollary that still further dashed my wavering spirits—"the rocks are slippery to-day, those going do so at their own risk." Soon we were assembled round the smouldering embers of the camp fire, and the various "ropes" answered the roll call. Ours was the last rope to start, it was the last rope to reach the summit, strange to say it was the last rope to get in at night. In fact, it was a very bad rope. Edouard Feuz said we were "the limit"—and he ought to know for we were his rope.

Mindful of good advice I planted myself next the guide as we skirted the shores of the lake. It was a glorious morning—Cathedral was reflected in the mirror of O'Hara, its summit already touched with flame. Little wisps of mist still clung about Odaray but Huber towered above us, its castellated summit dark against the morning sky. Before long we were out of the timber on to the scree, the incline grew steeper and my troubles began; I was soon gasping like a dying fish. About half way up we paused to rest. Edouard looked us over with a cynical eye and much to my disgust put me back to the middle of the rope and put another member of the party, a most plucky climber, next to him. I made a feeble pro-

test but it was no use. "You'll get your second wind pretty soon—You can make it allright" said heartless Edouard and off we started again.

People who have never done any climbing have since asked me how I enjoyed the glorious view which unfolded before us as we went up. I have been forced to draw on my imagination for a reply to this question. As a matter of fact all I saw on the way up Huber was Edouard's boots. They prevailed the whole landscape and rose and fell with the regularity of clock work. Occasionally, *very* occasionally, these boots were near enough to be studied in detail, but more often I had to content myself with mere impressionistic glimpses of them disappearing upwards, ever upwards.

After we left the col we roped up and here we overtook the party ahead of us who had had to wait at "the rope ladder" familiar to all who graduated on Huber. Somehow or other that rock work was traversed. We had perforce to go slowly and here Edouard's prophecy came true—I got my second wind. Looking back on the climb as a whole the worst part of it was struggling through the timber and up the scree to the col. In Mr. Mantalini's immortal words, that was "one dem'd horrid grind." Finally we arrived at the snow slope immediately below the summit. Photographs of this interesting spot are most misleading. They represent it as a mild and innocuous slope, whereas it was really, according to my recollection of it and also from tales told previously by newly graduated ones, almost perpendicular. Even our accomplished end man acknowledged it was "an awkward little place." Slowly we crept out—one man moving at a time—and at last it was done. We had climbed Huber and stood on the very Peak of Things.

We spent about half an hour on the summit and then started the descent. By this time the steps on the snow slope were pretty well worn and the going was

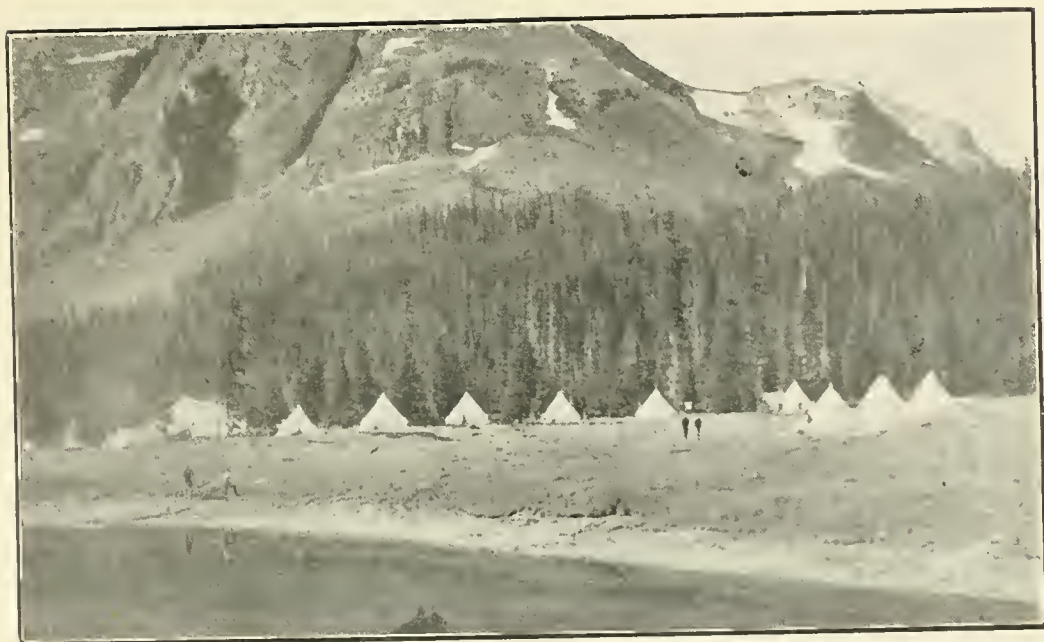
decidedly slippery. Edouard's adjurations to the "lady in the middle" became more and more peremptory. "Stick your feet in" said he, don't walk like a chicken." The words were hardly out of his mouth before the aforesaid chicken was accidentally pulled off her feet by the gentleman ahead who took an unusually long stride and pulled the rope taut. Something had to go, so I did. At least I started, but as they say in describing big climbs: "The rope held." I should say it did. It nearly cut me in half. Fortunately my knee caught in one of the steps and I managed to hold on to my alpenstock, so before long the chastened chicken and the rest of the party were safely down on the snow-field leading to the rock work. Here Edouard decided we might try to glissade. For some reason it was not a success. Either we started too soon or we did not all start together. Something went wrong evidently, for all I can remember is trying to dodge the gentleman behind me, who being heavier naturally came down faster and insisted on using me as a toboggan. From the distance we must have resembled a baby avalanche. However, we covered considerable ground and, as it was getting late and the rock work had still to be negotiated, perhaps it was just as well we did hurry involuntarily.

Oh! that rock work—Coming up was nothing to getting down. To Edouard's disgust I made the attempt with my back to the rock instead of in the conventional manner. I knew I didn't look a bit like the picture of The McTavish on Crows' Nest, but I also knew that if I turned I should get dizzy. But turn I did in answer to Edouard's pleadings, and dizzy I got, and when finally I half slid half tumbled to the bottom of that rope ladder (ladder indeed!) I asked to be let alone to die in peace. Edouard's treatment of my sad collapse was to force upon me a little piece of hard cake and some water which he found in a crevice. These had a marvellous effect and

before very long we reached camp where the evening fire was blazing gloriously and the President as usual was prowling around the outskirts on the lookout for late parties. They gave us three cheers—I never heard a sweeter sound in my life—and we gave three croaky ones for Edouard who certainly deserved them—for had he not shepherded us to the top of Huber “by the power of man”? Then some one gave me tea and more and more tea, and presently, sinful pride having rule inside I went out to the camp fire to tell fearsome tales of the day’s adventures. Now for the first time I felt as though I belonged in that circle. Never, never should I be a mountaineer, the precipices of Crows’ Nest were not for me, but nevertheless the climb had been made, badly, falteringly, but to the top and accordingly I was made free of the great and noble company of mountaineers.

That night as I vainly twisted and twined to ease my aching bones I lived the whole day over again. The vision from the summit of Huber unfolded itself again before me—that sea of peaks, height calling unto height and depth to depth—the Kingdoms of the Earth and the glory thereof spread out before us.

In conclusion let me not forget to record—“We had been out fifteen hours.”



F. W. Freeborn, Photo

GENTLEMENS' QUARTERS
O'Hara Camp



F. W. Freeborn, Photo

PHOTOGRAPHING A COLONY OF YOUNG MARMOTS

AN AFTERNOON STROLL IN THE SELKIRKS.

BY H. B. DIXON.

It was a sad moment when the English party had to say good-bye to the Canadian Alpine Club at Field. We had been the guests of the Club for nearly three weeks—guests of honour, so to speak, at Banff, of friendship at Lake O'Hara, and—we feel we might almost say—of affection in the Yoho. And here were all the “boys” on the platform to see us off. How fond we had grown of these fine fellows with their broad shoulders and ringing voices. How much we appreciated being looked after so assiduously. How much we should miss that strident call to meals—“Roll up!” Why they should have become attached to us—beggared our understanding. But the fact remains, they really seemed to enjoy fetching and carrying, cooking and washing up, tent-pitching and bed-making—all for our comfort.

We parted with many vows that we would all meet again in the Rockies, and the words as spoken did sound hollow. But the President's sentiment was more wisely put: “Well, *some* of us will meet again, and we'll remember the rest.”

“All aboard!” and we disengaged our hands to swing on to the moving steps, and waved hats and scarves as our west-bound train began the long descent of Kicking-Horse Pass. It was the end of a rare good time, which I have tried to tell of (I know how inadequately) in another Alpine Journal.

That afternoon, as our train breasted Rogers Pass, we looked across the valley at the tops of our friends of the Rampart Range, “Afton, and “Rampart” and the

"Dome," and in a short time we were quartered at Glacier House where other members of the party were awaiting us. Glacier House is enlarged and improved, but is not yet improved out of all recognition—like the "Chalet" at Lake Louise. Our kind hostess of 1897, Miss Annie Mollison, has gone to Calgary, where indeed she met our train and pressed on us baskets of fruit to beguile our journey. But nevertheless we received a warm welcome and were made very comfortable at Glacier.

I must confess our mountaineering here was of the idlest. Perhaps it was the return to the flesh-pots that was responsible for this slackness. Beef-steaks and omelettes for breakfast—though they give an admirable sense of completeness to the morning—do not induce any abnormal desire to make early starts. And so it came about that we wandered round Marion Lake, visited the Caves, and hacked steps on the Illecillewaet with no particular object—but always to the intense interest of the Yankee crowd of trippers. When my Oxonian daughter in her climbing costume took a stroll with me on the glacier we evoked quaint remarks: "Snakes, there's a plucky little girl takin' the Swiss guide right up the ice." And so our last day came—a really fine day—and we hadn't even attempted a peak. A picnic and tea on the Asulkan Glacier was the *pièce de resistance* for the afternoon—"Why not climb Afton and join the others for tea?"

So Mrs. Spence, with her graduating honours fresh upon her, took me up the Abbott trail in a blazing sun. The trail loses itself—or we lost it—on the Abbott Alp. But we found a broken place in the cliff that faced us, and after an easy scramble reached the ridge. The view is wonderfully fine from the Alp, but the ridge opens up new ranges and the magnificent snow fields of Mt. Bonney to the West. It would have been a sin to hurry over this. We ate our luncheon, and lay in the sun—*could* we

have slept?—for a delicious hour. Then we traversed the ridge and climbed the rocks of Afton. We ought—as we had decided to descend to the Asulkan glacier—to have gone straight down the snow couloir from the col between the two peaks, but my companion has a feeling that snow should only be tackled if no other way is open, and beneath the lower peak an enticing rock chimney led down and would certainly “go” for two or three hundred feet by the aid of a few traverses.

A large party on the Asulkan glacier below watched us through Swiss glasses as we reconnoitered the face. They were already where we had promised to join them for tea. Well, we had a jolly climb down—keeping as near as possible to the edge of the buttress that falls from this point—picking our chimney to the right and left of it, and traversing round on sound ledges until we found another opening. The rock was firm and the holds good, but it took time—and I was not surprised when we reached the foot of the great cliff that we had been an hour and a half on the rocks.

From our position it *looked* quite an easy run down either to the snout of the glacier or to the river running from it—and it was only 4.30 p.m. But I had been in a Selkirk bush before and warned Mrs. Spence that the little belt of forest and bush between us and the river would take some crossing. What I did not expect was that the apparently easy grass slopes leading from the rock-face of Afton down to the wood would take nearly two hours; but they did. The grass was so steep and slippery that even with good nails I slathered down it in jerky glissades, and Mrs. Spence who had lost nearly all her nails had almost to crawl. We found a few patches of old snow which made easy going, and we lingered a moment in a hollow of the hill ablaze with yellow and white lilies. At 6.20 p.m. we reached the tree line. Should we select the pine-wood or the scrub?

I knew the wood was bad, so—probably unwisely—chose the scrub. A few minutes made it plain that it would be a fearful fight to get through on the level; when it dipped down it would be hopeless. So we selected a small stream and followed right down its bed. At first we stepped gingerly from stone to stone as we parted and pushed through the boughs overhead. By keeping to the stream—and we soon forgot to bother whether we stepped in the water or not—we could just see what we were going to step into; but after an hour's struggle we could hear that we were near a waterfall, and presently we saw our stream slide over a smooth slab and disappear. The bush was too thick to let us see what fall there was. We turned out of the bed of the stream and forced a way through the bush to the left. After traversing some thirty or forty yards I thought we might venture forwards—testing the ground (which it was quite impossible to see, for we were walking on bent-down boughs) with the ice-axe at every step. Then without the slightest warning—for my axe struck something hard in front of me—I took a step on to what appeared solid ground and, whatever it was, “it failed beneath my feet.” I went straight down, tearing away the twigs I was grasping in my left hand, down through a region of total darkness, scraping along what I took to be a stem (but it turned out to be a hanging root) and coming into the light—and also stopping—in a sitting position with one leg round the root, which made a convenient loop before running back to the ground above. Long rootlets hung in a festoon round my head, but beneath me it was light enough, for I looked down on tree tops forty feet below me. My perch seemed secure, so I had time to look round. Away to my right was the water-fall—descending quite clear of the cliff which I could just touch with my axe. A great slice of cliff had flaked off leaving the earth and roots, which it had supported, overhanging

like a cornice. The rock was hopelessly smooth and leant over towards me; there was no getting up or down it. Below was space and waving tree-tops, above me the smooth straight root gave the only path; I had to swarm it. The first eight feet were simple climbing, but the rope and axe were awkward impedimenta. Then the roots got complicated and I could not push my shoulders through. There was nothing to get one's feet on, and as the seconds passed I thought of a descent and a tumble into the tree tops would be the "way out." Then I managed to get one shoulder jammed between the roots, and kicking out "behind and before" in a final effort caught a toe on some unseen projection. This gave enough leverage to force my shoulders through, and in another moment I had a foot-hold and it was easy work to push a way through the dark hole above. I was surprised to find I had gone down a drop of sixteen feet. These acrobatics over—and a brief breathing space allowed—we took a fresh traverse to the left and then cautiously turned down the slope again. It was still steep, and until we had forced a way down some two hundred feet we could not be sure we were not stepping into the blue at every step. That little belt of scrub took us two mortal hours, and the light was just disappearing as we emerged into the comparatively level "meadow" by the river.

I spotted and followed a track where grass and weeds had been trampled down and bushes bent and broken for a height of two feet six or so. "Why a party has been along here," cried Mrs. Spence. Yes, a grizzly or a large brown "party" had been along pretty recently, but there was no time to discuss details if we meant to cross the Asulkan river and get home that night. I kept a fairly bright look-out for the "party," and on reaching a spot that plainly showed his claw marks judged it expedient to make a slight detour. Mr. Bear might turn

nasty if he thought we were pursuing him on his way to his evening drink.

We reached the river and found it deep and rapid. We forced a way for some hundred yards down the left bank and then Mrs. Spence spotted below us a natural bridge. It was a large fallen tree and made an excellent bridge even in the gloom. Having crossed the water we scaled and tumbled over fallen timber till we hit the path. Hurrah! we were through!

The light was now gone, but the path could hardly be mistaken—even in the dark—and we sang in pure light-heartedness. But we were to have one more sensation. Though the rocks and trees to our right were lost in gloom, the white foam of the torrent on our left gave a half-light that let us see a few yards ahead. I don't know whether we had bear on the brain—but there right in the path as we turned a corner of rock stood Mr. Bruin. I cannot exactly say—as the poet says of another sudden vision—

“His loveliness with shame and with surprise
Froze my swift speech.”

for it was too dark to discern the beauties of his form. But I caught the glint of a small eye as he turned, and distinctly saw the grey fur round his neck bristle as he waited for us. Our song ended with a jerk, and we and he stood still and silent.

Now according to all poetic canons a gaunt wolf, or (presumably) a grizzly, when he meets an unarmed person (of blameless habits) singing a song in a wood, should immediately turn tail when he hears the name of the heroine of the song—be she

“Lalage, Neaera, Haidee, or Elaine or Mary Ann.”
A fortiori when a lady is actually present, he should not stand upon the order of his going, but go at once. Stay: was I judging Mr. Bruin fairly? My companion is tall

and slim, and was correctly attired as an active member of the Canadian A.C. Should *I* have been sure, if I could have put myself in his place, that it *was* a lady? Anyway he stood his ground stubbornly; but he did not come at us. I looked to right and left, feeling we might, without loss of dignity, yield him the path if we could find a way round. It was not easy. Then came a happy inspiration. I felt for my matches, picked out two and advanced between him and the torrent—striking a light within two yards of his nose. And lo! the mystery was revealed. It was a fretful porcupine standing on a black rock, and shaking indignant quills at our intrusion.

An hour later we crept into Glacier House dishevelled, stained and hungry. And Mrs. Young, the hostess, shook her head at us and said we were incorrigible, but gave us an excellent supper all the same.

WITH THE SCOTTISH MOUNTAINEERING CLUB AT EASTER.

BY G. M. SMITH.

When the Scottish Mountaineering Club assembled in a distant, northwest corner of rugged Ross-shire for their annual Easter meet, it was discovered that a quorum of the Alpine Club of Canada had also gathered together. The presence of that quorum may justify some account of the proceedings in the *Canadian Alpine Journal*.

Travelling north as the guest of Mr. Solly, I awoke on the Thursday morning before Easter to find myself among the brown Highland hills, whose summits were still covered with snow—a startling surprise, with the previous night's picture of a crowded English city still impressed upon my mind. At Kingussie, where we issued forth to claim breakfast baskets, ordered for members of the Club a month before, came the first deep breath of Highland air. The holiday had begun.

On the station platform at Inverness rucksacks and ice-axes betrayed the motives of a jolly band of mountaineers who seemed to have suddenly assembled. Time, it was explained, was invented for slaves and is no object in the Highlands, and before the train for Achnasheen had proved the fact, the Alpine experiences of the year had been recounted and the tale of the O'Hara camps ten times told.

Then a plunge into the heart of the Highlands—under the crags, through the glens and beside the lochs. Here and there a cairn marked, not the triumph of the intrepid climber, but the site of some ancient struggle

of the clans in memorable cattle raids; and from the corner of the carriage a modern representative of the clans, who had turned his spears into ice-axes and has abandoned cattle raiding for "Alpinism" pointed with pride to the monuments of ancestral vigour. But the fighting traditon remains. A sturdy Gael seeing "battle-axes" in the carriage, furtively inquired the nature of the row.

From Achnasheen, the Scotch cousin of the Canadian Hector, a ten mile drive to Kinlochewe at the head of Loch Maree, opened before us the wild, rugged and desolate, yet wonderfully beautiful scenery of Ross-shire. The snow-clad peaks above, a surprise to eyes which imagined that Canada and Switzerland had a monopoly of snow, and the deep brown lochs below, the rushing mountain torrents, the peat moors, the fragmentary clumps of bright green pines, sole survivors of great forests, and the heather with its faded flowers—the whole fused into a mellow mass of colour by the mystic Highland lights—gave promise of one of those other Edens which are the Paradise of mountaineers. On the hillside two stately stags gazing curiously at the intruders before plunging madly up the hillside, warned us that we trod by permission on forbidden ground.

The inn at Kinlochewe was the headquarters of the main section of the meet, for limited accommodation forces the club to divide. To simply say that it is a Highland inn is eminent recommendation. No tin plates, no canopy of canvas, no brushed tents, no camp fire, yet marvelously fascinating and comfortable.

There is a temptation to wander from the technicalities of climbing to a contemplation of the beauties of Ross-shire. For the scenic aspect often is pre-eminent. The Scotch mountains have their difficulties; but for the slack man and the photographer, there is an easy way to the summit or rather to the various summits, for in a

day one climbs a range and not a single peak. To satisfy the "Steigenlust," the strenuous climber finds the rock faces of Coire MacFhearchair on Ben Eighe or the northern pinnacles of Liathach. Readers should perhaps be warned against attempts to pronounce these names. Mr. Roosevelt and phonetic spelling have not yet invaded the Highlands. With the silent lapse of time and the mutations of language many of the surnames of these "Bens" are impenetrable mysteries.

But what of climbing? Perhaps I may narrate briefly my own experiences, which are also those of Mr. Solly. Good Friday, three weeks of Ben Eighe were climbed, and on this day Mr. G. E. Howard was one of the party. The altitude of these Scotch mountains is but slightly over 3,000 feet but starting from sea-level one gets the full benefit of the stated height. Over the moors and up the stalking path, across a high plateau, up a steep snow slope and over a small cornice and nothing remained but a windy walk in the Scotch mist to the first peak. One could not see far in the mist but it seemed as if huge Alpine ranges loomed up before us. Distances and heights are magnified. Traversing the ridge to the next peak we encountered a row of "Black men," pinnacles of Torridon sandstone which obstruct the way. From the second to the third peak it is a matter of scrambling over rocks. A glissade, another stalking path and a five mile walk completed an easy first day.

Saturday opened with a ten mile drive to the sea-loch Torridon, followed by a long walk around the base of Liathach to an inland valley, from which the northern pinnacles were accessible. But the roundabout way along an old lateral moraine was long, if delightful, and it was one o'clock before the main ridge was reached. The north side of Liathach has two horseshoe corries and the famous northern pinnacles, a deeply serrated ridge of Torridon sandstone, rising in steps to the cen-

tral peak, makes the wall between them. The lateness of the hour and a gale from the sea made it impossible to get down into the corrie and up the wet rock of the pinnacles. We therefore traversed the serrated main ridge, over pyramid-like peaks looking down into the two unparalleled corries. Huge white valleys, they seemed, walled by the steep, black rock of Liathach, with its long perpendicular gullies outlined in snow. In the distance the eye travels along the deep valleys on either side or out across Loch Torridon and the sea to the Isle of Skye. On the last peak a snowstorm led to a hurried, glissading retreat. Tea and the trap we found at the keeper's lodge.

On Sunday, a long walk on the moors with a return by Lochs Conlin and Clair revealed one of the beauty spots of Scotland. The afternoon was clear. To the right in the distance the snows of Liathach were bright in the sunshine; to the left the sun went down behind a sombre, wooded hill. Across the loch rises another wooded hill, with a hunting lodge in the trees. As we traversed the opposite shore, the whole scene is mirrored in the dark lochs in an ever-changing panorama of extraordinary detail and colour, the white chimneys of the lodge, appearing as stalactites in a gloomy cave, lightened by the snows of Liathach through an aperture concealed by the pines and birches of the foreground.

Monday's climb up the sides of Corrie MacFhearchair, returning over all the peaks of Ben Eighe was likewise full of interest—the picturesque ice-bound loch with the corrie in the background, suggestive of McArthur without the Biddle Glacier, the climb up steep, crusted slopes, the views of Liathach, the distant outlook to Loch Ewe, to the peaks of Skye and to the outer Hebrides. Similarly Tuesday's walk up Slioch gave incomparable glimpses of a score of picturesque lochs and valleys.

Wednesday, we left Kinlochewe for Dundonnell on Little Loch Broom, a twenty-four mile walk through the glens, now untrodden save by deer and their hunters, over two 1,000 foot passes and around the charming Loch Fada. A long walk in a third valley along a stream, of which the deep pools everywhere invited a plunge, brought us to a gamekeeper's cottage, where with true Highland hospitality we were given tea. Still eight more miles over unknown moors and the unfamiliar mountainside of the Teallach Range, with darkness coming on. Then followed a most exciting walk over the upland moors and through the darkest and gloomiest of glens to another Highland inn and another Highland dinner. The pleasure of reaching Dundonnell was not incomparable to an arrival in Paradise Valley after a journey over the Abbot and Mitre Passes.

On Thursday, a late start did not permit us to traverse the whole of the Teallach Range—perhaps the most difficult of all in the neighborhood—but reaching the highest point in the long broken ridge, we returned as we had come. To gain the final peak, by a traverse of a soft snow slope over a precipice falling sheer in the loch in the valley, the rope was necessary. This was the only occasion on which it was used.

Friday, a motor carried us thirty-six miles to the nearest station, Garve—another surprise to any who imagine that one can't get off the trodden paths in the British Isles. The night was spent in Inverness and Saturday, the Highlands abandoned.

Climbing in the Highlands, it is obvious, finds its charm in the picturesque. But it is also extremely stimulating, if not thrilling. With the background of inns, it may be called comfortable. It is none the less delightful. The Ross-shire Ranges, moreover, are sufficiently far from civilization. A few crofters, shepherds and gamekeepers are the sole inhabitants at Easter time of

this distant corner of Great Britain where the cry "back to the land" is meaningless. Here are the haunts of grouse and hare, of eagle, the ptarmigan and the raven; the deer are monarchs of the glen. Easter is the climbing season; then the deer forests are open and the snow is on the mountains.

Into Kinlochewe, came the merry mountaineering invasion, filling the inn, the manse, the cottage. There the camp-fire spirit of the Rockies found a counterpart. One heard much of the hospitality of the Alpine Club of Canada, but there too, Canadian hospitality found a serious rival. Great interest was evinced in the Canadian Rockies and nothing but the routine duties of life, or perhaps the possibilities of a general election, seems to prevent many from visiting the camp of 1910 in the Valley of the Ten Peaks.

There were no ladies at the meet. A separate sister organization is the pride of Scotland.

"And from Caithness down to Arran, on the mountains
big and barren,
You can trace their little footprints in the snow."

Scotland, it may be said in conclusion, is not necessarily as advertised. It tried to rain but twice during the meet.

MATHEW ARNOLD'S ALPINE POETRY.

Of truly Alpine verse in English poetry there is not very much, and the reason is too obvious to mention. Without greatly caring for the philosophical theories concerning Nature held by Wordsworth or Coleridge or Browning or any of the Master Poets, the ordinary mountain climber who reads poetry is attracted to descriptions of mountain landscape. What he wants is truth of description, pictures that please him because he has seen the sights and heard the sounds and felt the thrill of the upper world. Without the poet, these pictures continually flash upon his inward eye, but his rapture of memory has no voice. Take, for instance, Coleridge's great apostrophe to Mont Blanc, surely the sublimest Alpine utterance in the language: it is now our poetic expression who, without it, were dumb. We might climb high mountains till the crack of doom, and still be dumb; and it is well, since our silent memories and feelings are uttered forth by singers so inspired.

We could essay no more delightful task between climbing seasons in the long winter evenings when the next summer's campaign is being affectionately planned, than to make for ourselves an Alpine anthology. Here is an idea gratis for that fruitful anthologist, Mr. C. V. Lucas, who might call it "The Alpine Pageant." It would be an "unspeakably slight" though indubitably choice volume. In it we should find some beautiful fragments and more than one whole poem of Mathew Arnold's. R. H. Hutton, than whom Arnold has had no more sympathetic and discerning critic, found a language of death even in his poems of Nature. The phrase was Hazlitt's applied to Wordsworth's "Loadamia"; and

Mr. Hutton quotes the whole terse sentence as true of the body of Arnold's verse: having "the sweetness, the gravity, the strength, the beauty, and the languor of death; calm contemplation and majestic pains." He finds that this languor drives Arnold to Nature and haunts him there, albeit his pulse beats stronger under her spell. But I think there is genuine passion in Arnold's Alpine passages; and one poem, at least, is strong with a strength born of the poet's love, deep and vital, of wild alpine beauty. True, all these poems of Switzerland are marked with a hopeless human love, real or imaginary, for a lady whom he names Marguerite. But it is to the high Alps with their purple hills, eternal snows, and exulting winds that he turns for healing and refreshment. And most of these fragments are steeped in profoundest melancholy, but that is not owing to anything in the scenes he describes. Take first, some passages from the groups of poems whose theme is his unrequited love of Marguerite. As far as possible I shall leave out the lines referring to her.

"* * * * *

Some day I shall be cold, I know,
As is the eternal moon-lit snow
Of the high Alps, to which I go.

* * * * *

And as this brimmed unwrinkled Rhine
And that far purple mountain line
Lie sweetly in the look divine
Of the slow-sinking sun;

* * * * *

So let me lie, and calm as they
Let beam upon my inward view
Those eyes of deep, soft, lucent hue—
Eyes too expressive to be blue,
Too lovely to be grey."

And this poem in which the elements are the voice of his longing heart:

“Ye storm-winds of Autumn
Who rush by, who shake
The window, and ruffle
The gleam-lighted lake;
Who cross to the hill-side
Thin-sprinkled with farms,
Where the high woods strip sadly
Their yellowing arms;—
Ye are bound for the mountains—
Ah, with you let me go
Where your cold distant barrier,
The vast range of snow,
Through the loose clouds lift dimly
Its white peaks in air—
How deep is their stillness!
Ah! would I were there!”

Then he hears her voice on the stairway as music from some “wet, bird-haunted English lawn” or from some clear mountain brook. But

“Hark! fast by the window
The rushing winds go,
To the ice-cumbered gorges,
The vast seas of snow,
There the torrents drive upward
Their rock-strangled hum,
There the avalanche thunders
The hoarse torrent dumb.
—I come, O ye mountains!
Ye torrents, I come!”

The interlude brings her figure casting its shadow, then her face, eyes, hair, cheeks and lips described in exquisitely delicate phrasing. And again the tumultuous winds:

“Hark! the wind rushes past us—
Ah! with that let me go
To the clear waning hill-side
Unspotted with snow,
There to watch, o’er the sunk vale,
The frore mountain wall,
Where the nich’d snow-bed sprays down
Its powdery fall.
“There its dusky blue clusters
The aconite spreads;
There the pines slope, the cloud-strips
Hung soft in their heads.
No life but, at moments,
The mountain-bee’s hum.
I come, O ye mountains!
Ye pine woods, I come!”

The stanzas following are poignant with the pain of separation, and he turns to Nature in whose heart is balm for all who love her.

“Blow, ye winds! lift me with you!
I come to the wild.
Fold closely, O Nature!
Thine arms round thy child.

To thee only God granted
A heart ever new:
To all always open;
To all always true.

Ah, calm me! restore me!
And dry up my tears
On they high mountain platforms,
Where morn first appears.

Where the white mists, forever,
Are spread and upfurl'd;
In the stir of the forces
Whence issued the world."

Were there space, I might quote some lovely Alpine verses from "Obermann" and from "The Grande Chartreuse," but enough has been quoted to prove Mathew Arnold worthy a place in any Alpine anthology.—E.P.



HECTOR G. WHEELER

IN MEMORIAM.

HECTOR G. WHEELER.

The death occurred on July 6th, 1909, at Hawthorne, Ontario, of Hector George Wheeler, Assistant Chief Mountaineer of the Alpine Club and an official of the Dominion Topographical Survey. It was owing to exposure in the field that Mr. Wheeler was smitten by a severe illness which kept him for four months in the hospital at Revelstoke and which developed into an incurable malady. Until the end almost, he was hopeful of recovery and eager to get back to the mountains. Shortly before his death he said to the writer, "I shall see you at Camp at Lake O'Hara, but I shall not be climbing any this year." I had taken him a box of anemones, the first spring blossoms on the prairie, and he said, "they will just be blooming on the mountains when we get to camp." But the signs of death were even then in his face. Throughout his long and painful illness, his patience never wearied and his sweet temper never failed.

Mr. Wheeler was a son of Captain E. O. Wheeler of "The Rocks," Kilkenny, Ireland. He was born in London in 1873 and came with his parents to Canada in 1876. He served an apprenticeship of five years as an engraver with the British American Bank Note Company, at its close accepting the position of topographical draughtsman in the office of his brother, Mr. A. O. Wheeler, Topographer in the Department of the Interior. One of the most skilful draughtsmen in Canada, he was an invaluable member of the staff. Several of the pub-

lished, and many of the unpublished, maps of the Selkirk and Main Ranges of the Rockies are the work of his pen.

These maps are made from photographs obtained from the summits of mountains, a process involving difficult and dangerous climbing, often of unknown peaks. While attaining to great skill both on ice and rock, Mr. Wheeler had several times escaped death by a hair's breadth. Once he fell through a snow-bridge into a crevasse and was saved by his ice axe catching on the edges; and twice he shot over precipitous ice-slopes, his descent being arrested as if by miracle. An original member of the Alpine Club, he was closely connected with all its operations. He was one of the most trusted guides, and under his leadership many have graduated to active membership. The qualities which won him confidence as guide were the qualities which brought him respect and affection as man—great strength, and a skill, born of study and experience and love of climbing; infinite patience and gentleness of temper; and an altogether sweet and unconscious selflessness. Members of this Club did not wait for his death to express their admiration and affection for Hector Wheeler. These things were said of him while yet he was alive and active. The writer of this too feeble tribute holds his memory dear for the influence of his strong, gentle spirit. It was the gentleness which makes a man great. His true home was in the mountains; he loved them and left them with regret, hoping and expecting to return.

“From depth to height, from height to loftier height,
The climber sets his foot and sets his face,
Tracks lingering sunbeams to their halting-place,
And counts the last pulsations of the light.
Strenuous through day and unsurprised by night
He runs a race with Time and wins the race,



REV. J. C. HERDMAN, D.D

Emptied and stript of all save only Grace,
Will, Love, a threefold panoply of might.
Darkness descends for light he toiled to seek:
He stumbles on the darkened mountain-head,
Left breathless in the unbreathable thin air,
Made freeman of the living and the dead:—
He wots not he has topped the top-most peak,
But the returning sun will find him there.”
—Christina Rossetti.

THE REVEREND J. C. HERDMAN, D.D.

The late Dr. Herdman was a native of Pictou County, N.S. He came to Alberta in 1885, when twenty-nine years of age and for nearly twenty years was pastor of Knox Church, Calgary. He resigned the incumbency in 1903 to assume the position of Superintendent of Presbyterian Missions for the Province of Alberta and Eastern British Columbia. He died on 7th June, 1910, at the early age of fifty-four years, and was buried at Banff in the Rocky Mountains Park amidst the snow-clad peaks and pine forests he loved so well.

In March, 1906, he travelled as a delegate to Winnipeg to attend the organization meeting of the Alpine Club of Canada, and was elected as its first Western Vice-President. Always an enthusiastic and able mountaineer, he was a keen supporter of the Club and a regular attendant at its Annual Camps. To his untiring zeal in this direction the Club owes much during its infancy and the subsequent success it has attained. Apart from the Annual Camps the Doctor was a strenuous mountaineer and did good independent work. He was one of the few men who had taken part in the noble sport in the Canadian Rockies prior to the organization of the Club. Amongst his achievements may be mentioned an early climb of Mt. Hector, the monarch of the Bow

Valley, when the Doctor used an ice-axe made from a pattern furnished by him to a Calgary blacksmith. It was truly a wonderfully made article compared with the light and symmetrical modern weapon of attack, but served to carry the Doctor to victory.

Like all enthusiastic mountaineers, he was keen to accomplish first ascents. Standing to his credit are those of Mts. Hermit and Macoun of the Selkirk range. Mt. Macdonald, one of the portals of Rogers Pass, was ascended by him with the same object in view. Having reached the summit in company with the Swiss guide, Edouard Feuz, Senior, they built a cairn and claimed a first ascent. The Doctor was standing beside a huge block of rock in which was a hole filled with rain water. Curiosity impelled him to plunge his arm into the hole and at the bottom he found a rusty nail, material evidence of a previous climb. At a mission meeting at Chilliwack some time later, the Doctor told the story, when one of the audience arose and stated that he could inform him who had placed that nail on the summit of Mt. Macdonald, as he and one other had made the ascent during the construction of the railway through the Rogers Pass.

Dr. Herdman last attended the Paradise Valley Camp in 1907. His subsequent illness caused his withdrawal from the activities of the Alpine Club. He was a strenuous mountaineer, an intense lover of Nature in her primeval fastnesses and a cheery and sympathetic comrade around the camp fire. We loved him well, and feel sure that his noble character and faithful performance of his life's work have received their due reward and that his last and great ascent has placed him on the summit of man's greatest hope and aspiration, where he will realize true peace and happiness.

A. O. W.

ALPINE CLUB NOTES.

ON EQUIPMENT.

A mountaineer's equipment is of paramount importance, and many sad accidents are directly traceable to an inadequate outfit. It is on record that men wearing patent leather shoes, silk socks and light cutaway coats have successfully accomplished the ascent of Mont Blanc, yet nothing but the most extraordinary luck has saved them, and it would be just as foolish to base conclusions on such cases as it would be to maintain that falling off a roof is a harmless form of sport just because some lucky individual did, some time or other, perform such a feat without breaking his neck. No mountaineer worthy of the name will venture into the mountains without a suitable equipment. In selecting this equipment, the climber must bear in mind that it is often very difficult to predict, on any given day, just what the conditions on a high peak will be. He must always remember that even a slight accident may force a bivouac and that the possibility of a quick climatic change is ever present. It is, therefore, necessary to go prepared for the worst, while reducing bulk and weight to a minimum. In that which follows, the writer has endeavored to give such hints as a long experience suggests, and he trusts that they may prove of use to beginners.

Well-nailed boots are probably the most important part of a climber's outfit. The sole should reach from toe to heel *without a break* and should be about $\frac{5}{8}$ " thick, projecting slightly beyond the uppers, so as to protect the latter against sharp stones. There should be hardly any "waist" under the instep and the heel should project *slightly* all around. A broad sole throughout materially stiffens the boot and gives a welcome sense of security when standing in ice steps. The broad "waist" is of vital importance, since it protects a sensitive part of the foot from injury by sharp stones. The boot should fit closely at the heel and around the instep, but *entire freedom in all directions must be provided for the toes*. If the toes are at all cramped, they will freeze very easily. Pointed boots are, of course, quite out of the question. The uppers should be specially stiff and strong round the heel and should reach at least two inches above the ankle. Porpoise leather shoe laces threaded through eyes (and not caught in hooks) give the best wear. Hooks are a source of constant trouble. The best possible well seasoned leather should be used throughout. Swiss or Austrian nails are the only ones worth considering. It is not an easy matter to nail mountain boots properly but, while there is no one pattern which has any very marked advantages, it is very necessary not to place the nails too close together. A closely nailed boot has little grip and is quite unnecessarily heavy. It is a great importance to have a few nails under the instep. It is a good plan to keep boots for six or nine months in a dry, well ventilated place before using

them. Much grease is as bad as not enough; it rots the seams. Climbing irons or "crampons" are very useful for hard snow or ice work, but should never be used on rocks unless the latter are coated with ice. The articulated Austrian patterns with 8 or 10 spikes are the best. Crampons *should fit the boots closely*; otherwise they will become a source of danger instead of a help. Hemp straps should be used in fastening crampons to the foot and it must be borne in mind that such straps contract very appreciably as soon as they become wet. It is not necessary to be always provided with crampons.

Thick woollen stockings are necessary; two pairs of such stockings, or one pair of stockings and one pair of socks, should always be worn. Those who, as a rule, do little walking during the year will find horse-hair insoles a very pleasant and useful addition. On long and difficult glacier tramps, two pairs of stockings and an insole are almost indispensable, for it is often necessary to move very slowly and to stand in ice steps for hours at a time. The boots should, of course, be ordered to accommodate the thick stockings and the insole, if one is worn. Elastic garters are dangerous, use plain leather straps lined with flannel; thus securing friction between stocking and garter.

In the way of underclothing, light woollen knee drawers and a woollen shirt of *ample size* are all that is necessary. All these articles should, however, be of the best wool. An abdominal belt, say of the Jaeger button pattern *should always be carried in the ruck-sack*. It is extremely light, takes little space and is of incalculable advantage in case of severe weather or a forced bivouac.

The climbing suit must be made of very strong and closely woven material. Rough tweeds are unsatisfactory; they cannot keep out a keen wind and tear easily. The material often used for riding breeches and known as whipcord cloth gives very good satisfaction. Whatever the material chosen, it is necessary that it should be at least of medium weight and that both warp (called "chain" in America) and woof ("filling" in America) be composed of two or three distinct strands twisted together like the strands of a rope. Inspection will show that in most materials, the warp alone is composed of several twisted strands, while the woof is composed of one strand only. Such materials do not wear well. A very light coloured suit shows dirt and stains too rapidly; a very dark one is very hot in sunny weather; a darkish grey or brown is best. Knickerbockers are immeasurably superior to trousers and have now been universally adopted. The riding breeches pattern is quite unsuitable, although smart. The old-fashioned, baggy knickerbockers is the proper garment, it should have plenty of overhang at the knee to allow *perfect freedom of movement*. A somewhat long knickerbocker is also very useful in that it can be undone at the knee, where it must be fastened with strap and buckle and *not with elastic*, and stuffed into the gaiters when tramping through deep snow. It is essential for the knickerbockers to reach well up *above the waist*, thus giving good protection to the abdomen. Belts are not to be recommended, suspenders should be worn instead. The knickerbockers should be lined with Jaeger wherever linings are usually used. An ample double seat (not of the small bicycle pattern) is necessary. Hip pockets should be avoided, a deep ticket pocket with flap on each side is very useful.

The opening for each side pocket should be horizontal and must have a flap. A waistcoat of the usual pattern is useful in travelling, but can be safely discarded on an expedition, a light woollen sweater advantageously taking its place.

A Norfolk coat overlapping by two or three inches on the chest and lined throughout with light Jaeger material is most serviceable. The collar should be deep, so as to give good protection when turned up and must button in front when so used. Straps on the sleeves near the wrist are very useful in cold, windy weather. The coat *must fit loosely* and allow the arms to be moved *quite freely in all directions*. It is a good plan to provide slits at the side of the coat (say about the middle of the watch pockets in the vest) through which the belt can be passed and then buttoned *underneath* the coat, thus keeping same in place, when the latter is not buttoned in front. The belt must be securely sewn to the coat; otherwise, it will surely be lost. Two deep, outside side-pockets, two large inside breast-pockets (for maps) and a deep and wide inside "game" pocket extending over the whole width of the back are necessary. All pockets should be lined with Jaeger and all outside pockets should have flaps. A *deep* inside watch pocket is very useful. The coat should be of medium length only.

A useful sort of hat is a broad brimmed soft felt. It gives good protection against the sun, is light and can easily be tied down with a handkerchief, or the like, when necessary. A stout and reliable hat guard should always be carried. The inconvenience of losing a hat is a small item compared to the risk run by anyone who attempts to save his hat when in a difficult position. The necessary movement must be sudden and may, therefore, cause the person to over-balance; yet the natural tendency is to make such a movement, unless entire confidence can be placed in the guard. A light woollen muffler should be carried on high peaks. A woollen cap or hood in the shape of a helmet with a small opening for the face and *reaching down to the shoulders* should always be carried. Such caps are known in Switzerland as "passe-montagne"; they can take the place of a lost hat and are invaluable in a snow storm, when they should be worn under the hat. They also give first-rate protection at night. Choose a large one, one that fits tight will give little protection.

A good ice axe is, of course, a necessity and most amateurs will be well suited with an ordinary Joerg (Zweiluetschinen) axe. Anyone wishing to do all the step cutting himself will select his axe a little more carefully. The proper over-all length for a six foot man is 40 to 42 inches. The shorter the shaft, the less help it will be in descending. The longer the shaft, the more it will be in the way when cutting steps. An expert relies little on his axe in descending and can afford to use a shorter one. The weight of the man determines the thickness of the shaft. The weight of the shaft being thus settled, the head must be of such a weight, as to insure a proper balance. The centre of gravity, when the axe is held horizontally, should be at a point located about $\frac{3}{8}$ of the total length from the head. Use as light an axe as your weight will allow and see that the pick end is very long, some 8 to 9 inches. This is very important and is of great help when cutting *down* steep ice slopes.

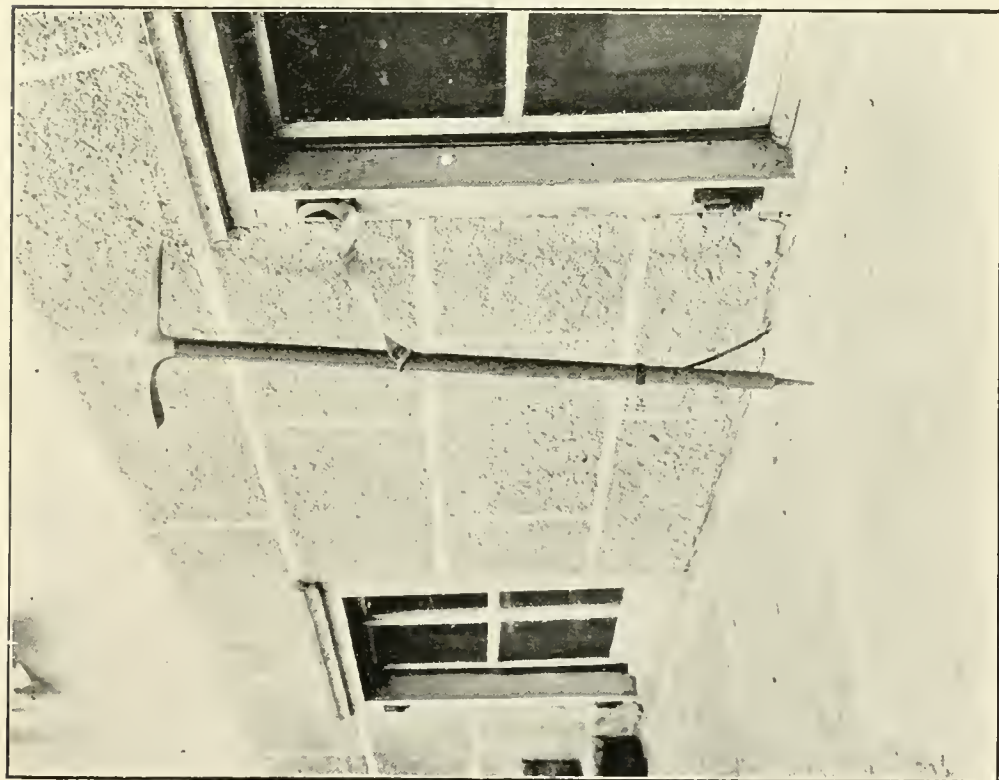
Slings of the ordinary pattern are most unsatisfactory. They are easily lost and must be either removed or hacked to pieces when cutting steps; furthermore, they do not secure the axe when cutting. The accompanying illustration shows a form of sling, which the writer has used for many years and which has proved satisfactory in every respect. A brass ring is adapted to slide freely up and down the shaft. To this ring is attached a strong leather thong or the like and a leather or metal stop fastened to the shaft of the ice axe, near the bottom, prevents the brass ring from sliding off. The noose of the thong is slipped over the wrist when the axe can be held in any *position* without removing the thong from the wrist. Step cutting with one hand becomes quite safe and even if the axe is wrenched out of the hand it cannot get away. The climber need not make frantic, dangerous and useless movements in an attempt to recover it. The axe can be safely let go at any moment in order to attend to the rope or to secure a hurried hold. The axe shown in the illustration is a well proportioned Joerg ice axe with a lot of "drive." An old suspender is attached to the sliding ring, instead of the leather thong above referred to. While such a broad band is less of a strain on the wrist yet no material but good leather seems able to give sufficient wear.

Goggles are indispensable. Smoked glass goggles are unsatisfactory, they either obscure the vision too much or they do not sufficiently protect the eye from the actinic rays. Authorities have lately declared that chrome coloured glass or the grey-green Fienzahl glass is much superior for this purpose. The goggles should be large, the glass itself measuring at least $1\frac{3}{8}$ by $1\frac{3}{4}$ ".

Gloves are indispensable and should always be carried. They should be of very thick and strong wool with a separate partition for the thumb but *without fingers*. Such gloves must reach well up the arm at least 4" beyond the wrist. Ordinary rough cotton gloves are most useful about camp and when climbing rough rocks. Several pairs will be required for each season as these cotton gloves give very little wear.

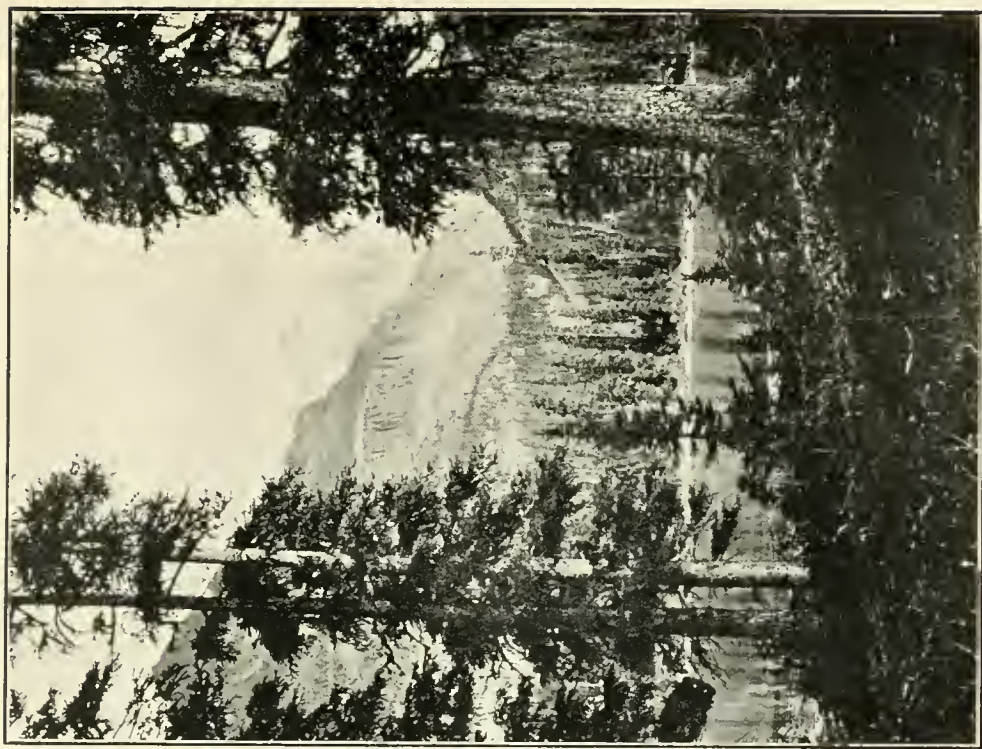
Spiral puttees are smart and convenient but they are not satisfactory for long snow tramps. They answer the purpose sufficiently well for Canadian conditions. A good plan is to have them hemmed with some suitable and strong material after wearing them once or twice. The disagreeable fraying will thus be entirely stopped. If wound on very tight such puttees impede the blood circulation, if put on loose they quickly come undone particularly if the calf is at all pronounced. For long snow tramps or for winter wear gaiters are best. A combination of the Chamonix gaiter and the puttee is very satisfactory for it combines the advantages of both while avoiding most of their disadvantages. It is important to carry two extra pairs of stockings on long expeditions. If a bivouac becomes necessary the dry pairs should be put on before settling down for the night.

Provisions and personal belongings are best carried in a "Rucksack." A number of light linen bags are most useful for separating and preserving provisions. People with a sensitive skin will do well to rub the face and neck with zinc ointment before venturing on snow or glacier. Sunburn is sometimes very painful and often causes fever.



Val. A. Fynn, Photo

ILLUSTRATING SLING ON ICE AXE



Olive Diron, Photo

A PEEP AT HUNGABEE

A fifteen or twenty-yard, ten-millimeter rope is sufficient in most cases for two climbers, provided the rope is of first class make. Three climbers would use a thirty-yard twelve millimeter rope. Dry your rope as soon as possible, but dry it slowly, stretch it well and put it away in a dry, well ventilated place. Do not leave a rope to dry for long on rocks and in a very hot sun.

It is thought that the principal articles of a mountaineer's equipment have now been briefly discussed. It is, of course, impossible to give directions which will apply to all possible expeditions but it is thought that a climber provided with the outfit here described will be suitably equipped for any ordinary expedition in the Canadian or European Alps. For short climbs, the outfit can be considerably reduced with absolute safety.

VAL. A. FYNN.

HINTS ON THE USE OF THE ROPE IN MOUNTAIN CLIMBING.

In the sport of mountain climbing the rope is one of the most important articles of equipment and, if properly used, is an absolute necessity to the safety of the climbing party, while it is a distinct source of danger to all if improperly handled, either through ignorance or carelessness. The following hints are given to inexperienced climbers therefore, and while, like any other sport, mountain climbing cannot be learned out of books, I hope that they may be of a little service to some of the newer additions to the quickly increasing ranks of climbers in Canada.

It is presumed that the party is equipped with a proper rope, of a length suitable to the size of the party and the nature of the work to be done, it being a Beale's Alpine rope of three strands of manilla hemp, with the thread of red worsted running through it, which is the only proper climbing rope made. The first item to be attended to on reaching the point where it is necessary to put the rope on is to see that this is done properly. There are three principal things to be looked after in connection with this, as follows:—

First.—To place the party in the proper order. A discussion of what this order should be is unnecessary here, but it might not be out of place to say that on guideless climbs, which I hope will soon become fairly common among the members of the Alpine Club of Canada as our experience and knowledge of climbing increases, the best man should be chosen as leader, to go first on the ascent and last on the descent, and once he is settled on for the position his word should be law until the descent is finished. As he is presumably the best and most experienced climber of the party he should issue his orders firmly and the others must obey him promptly and cheerfully, even though they may not be in perfect accord with him at all times. A disorganized party is always in danger, and when once the leader has decided on a certain course of action his leadership must not be questioned. Of course, it is not intended that the other members of the party should be debarred from offering a suggestion or that the leader should be above accepting one, but when one is offered the matter of whether it is or is not to be acted upon must be left to the leader to decide. The position of the rest of the party is of minor importance, except that one who

has had experience and who has a good bump of locality should be placed last, as he will be on the lead on the descent.

Second—To place the party at proper intervals on the rope. These intervals should be equi-distant, except in the case of that between the leader and the second man, which should be a few feet greater than the rest. This will often afford him a better opportunity of selecting safe anchorages from which to assist the ascent of the others in the party. What the exact length of the intervals should be varies according to the nature of the climbing to be encountered, and no definite distance can be laid down for it.

Third—To see that the rope is properly tied.—The bowline is preferable for the end men, and for the intermediate ones the "noose" is excellent, as once learnt it is easily and quickly tied, is easy to slip to the proper tightness around the waist and is perfectly secure. It is also easily untied, even when the rope is wet and stiff. However, the principal thing is to make sure that the knots are *safe* and that they cannot slip.

We will now suppose that the party is roped and ready for the climb. It must always be remembered that if one climber slips nothing serious is likely to happen if every member of the party is doing his duty, while neglect of duty may have serious results. The closest attention to the business in hand is therefore necessary and vigilance must never be relaxed. Admire the scenery while resting in a safe place, but not at any other time. As the late A. F. Mummery so impressively puts it "Among the mountains, as elsewhere, 'the unexpected always happens.' It is the momentary carelessness in easy (?) places, the lapsed attention, or the wandering look that is the usual parent of disaster. The first lesson the novice has to learn is to be always on his guard, and it is one the oldest climber rarely fully masters."

However, I shall now leave generalities and deal with the use of the rope, first on rocks and then on ice and snow.

Everyone should look after and be responsible for the portion of the rope between himself and the man ahead. This will place a definite duty on each one and will leave the leader free to select the best course and pick out good hand and foot holds.

On face work and difficult traverses only one should move at a time, and the others should be prepared to hold him in the event of a slip. After having attained a safe anchorage the leader will belay the rope, if possible, and then assist the others by pointing out the holds, keeping up the slack of the rope, and even, if necessary using it to assist them, they to move under his directions and only one move at a time.

Great care should be taken, when assisting a man with the rope, to put only the actually necessary strain on it. Otherwise harm may be done by pulling the climber from his holds, and there is the certainty of making him sore in at least one, and in perhaps two senses of the word.

When it is necessary to assist a climber by pulling upwards on the rope get as directly over him as possible. A sidewise pull will hamper the pulled one to a greater or less extent and may even be dangerous, by pulling him from his holds.

When paying out the rope to the man ahead keep it clear of cracks where it would be possible for it to jam. If allowed to jam it may result in the climber getting a distinct jerk which might

cause him to lose his balance. If it does get jammed, in spite of your care or *because* of want of it, give him sufficient notice to prevent him from being jerked.

Keep the portion of the rope under your care away from loose rocks. These loose rocks are one of the greatest sources of danger on a mountain, and if one is disturbed it may cause injury to one of your own party or of a following one.

Always make use of projecting rocks for belaying pins. When paying out the rope to the man ahead it should, when possible, be kept behind a knot or projection of rock which would take the strain of a jerk off the following men in the event of the man ahead slipping. A rounded rock is preferable for this, but always make use of one of some kind when within reach, *after having made sure that it is secure.* This practice should also be followed when making a difficult traverse and all members of a party should be on the lookout for suitable points for the purpose.

Do not put all your faith on the rope, nor look on it as a sure preventative of accidents. It will not prevent a climber from slipping nor a loose rock from breaking away if you put your weight on it. It is only intended to lessen the chance of serious damage if anything does go wrong. Climb independently of the rope as much as possible; on a *perfect* climb the rope would, while worn, never be called into use.

Test the rope at frequent intervals, particularly before trusting your weight to it. I have known a rope to be injured by a falling rock, so that only a portion of one strand was left whole, and yet, though the cut was within six feet of me, there was no sign of any damage having been done until fully ten minutes afterwards.

When a party is moving steadily carry a small loop of rope in one hand. This will prevent the pulls which will otherwise be felt on account of different members of the party moving at different speeds. It will also take up some of the slack and lessen the chance of the rope being cut by sharp rocks or of becoming entangled among your feet.

When making a traverse where a slip might prove serious do not allow any slack to hang in the rope. If this rule is neglected and a slip occurs the inevitable jerk may result very seriously.

When ascending or descending a steep couloir where loose rock is lying keep as close together as possible. If this is done rocks which may be dislodged can be arrested in their downward course before gaining a dangerous momentum.

On snow or ice the same care is necessary as on rocks, but somewhat different rules apply at times, and we shall now deal with some of them.

Use the rope on a dry glacier, if crevassed. A slip on the edge of a crevasse is always possible, and if the rope is not in use may prove serious.

Always use the rope when on a neve. There is no exception to this rule. Snow may mask dangerous crevasses and yet not be strong enough to carry a person. Crevasses are generally indicated by a slight concavity in the surface of the snow, which is of a somewhat darker shade than on the ice, but it is possible to overlook one, in which case one of the party may break through.

Before jumping an open crevasse make sure that there is enough slack rope behind you to allow you to reach the opposite

side. This may seem too obvious a rule to be given, but I have seen it overlooked.

Never travel over a glacier with a party of less than three. If one falls into a crevasse another can hold him up, but it is very difficult, if not impossible, for one man to pull another out. The same friction on the edge of the crevasse which makes it easy to prevent a man from slipping further down prevents the pulling of him up. If two or more are on top it is a comparatively easy matter, especially if the handle of an ice axe is laid close to the edge for the rope to slip on.

If one of a party falls into a crevasse raise him by pulling on the rope from one side of the crevasse only. If the rope is pulled on from both sides there is a certain amount of effort wasted in an incipient tug-of-war.

When ascending or descending a steep snow slope pass a loop of the rope around the handle of your ice axe and stick the point of the handle hard into the snow at every step. The friction of the rope around the handle will greatly assist in arresting the progress of anyone who slips.

When crossing a neve keep all slack out of the rope. You should always be prepared to take a strain on the rope and if this is properly watched a person who breaks through a snow bridge will be checked before they go down further than their waist and will be able to assist in getting themselves out.

When it is necessary to cross a steep snow or ice couloir where steps are necessary let the leader go to the full length of the rope by himself to cut the steps. As many of the party as are necessary to secure his safety can hold the rope while on good footing.

Do not lean towards the bank when crossing such a slope. If you do so you are liable to overbalance and fall against the slope and are also certain to lose your footing. Stand perfectly straight; it is not only safer but is easier.

After coming off the rocky portion of a mountain, where it has been necessary to unrope to cross the bergschrund, re-rope before crossing the neve. This is following the rule already given to never cross a neve without using the rope.

The above rules are almost entirely confined to the use of the rope, as a full list of rules to be observed while climbing would fill a book, but in addition to the above a few short additional rules are given which should always be remembered by climbers. They are as follows:—

Pay close attention to your equipment. See that it is of the best quality and in perfect order. This includes your boots and the nails in them. Never climb with darned stockings if you can avoid it. A climber, like a soldier, is only as good as his feet.

When on an ascent always be on the lookout for the means of descent. To quote Mummery again, "If a place cannot be descended it should not be ascended. If it is, the result may be that the party may be forced into difficulties from which they have neither the time nor the ability to extricate themselves."

Do not attempt a difficult place where at least one good anchorage cannot be obtained within the length of the rope. A slip on such a place will mean disaster for the whole party, and if such a place is met with a party is not justified in attempting it.

Never attempt a difficult climb except when the mountain is in good condition. It is always bad during a storm and for at least two days after.

Never attempt a climb in bad weather. And if a storm should come on, even threaten, during a climb turn back at once and get to safe ground as quickly as possible..

Never allow more than one of a party on a doubtful snow bridge at the same time. If this rule is observed there is only a chance of one breaking through, and this chance is much less than if more than one are on it.

Never jump on a snow bridge. Cross it as carefully as possible, so as not to jar it. There may be others to follow you and you may need it on your return.

If you should happen to partially break through on a snow bridge distribute your weight as much as possible on top of the snow. Throw yourself forward so as to assume a lying position, with your arms spread out and your ice axe flat on the snow.

Remember that snow bridges are likely to be much weaker in the afternoon than in the morning. The cold during the night will have tightened them up by morning, but the morning sun will have weakened them by noon. Therefore, it is not safe to assume that because a bridge carried you in the morning it will carry you in the afternoon.

Approach and cross crevasses as nearly at a right angle as possible. This will keep all of the party except the one actually crossing as far from them as possible.

Eat and drink as much as possible when climbing. This is necessary to prevent your vitality from becoming low and should be done even if you have to force yourself to do it. The drink should not be ice water.

Retain a reserve of strength and do not overtax yourself. A night spent on a mountain because one of the party has given out is not a pleasant experience.

Have sufficient clothing with you to protect you in emergencies. You are liable to meet with cold and stormy weather at any time on a mountain.

Take an extra supply of food with you. You may be detained beyond the expected time and hunger does not add to the delights of a night spent on a mountain.

Make sure of your hand and foot holds before putting your weight on them. A slip may mean disaster to a whole party, and, as it is not excusable, is always a thing to be ashamed of, even if without serious results.

Avoid places that are liable to be swept by avalanches of rock, ice or snow, especially in the afternoon. An avalanche of any of the above travels with incredible speed and seldom gives any warning.

Do not glissade down an unknown slope. You do not know a snow slope in the sense meant in this rule unless you have travelled over it within a few hours previously.

Do not drink the melted water found flowing over the surface of a glacier. It contains a large amount of fine, sharp rock in suspension, which is liable to cause trouble later on.

Avoid the use of stimulants while climbing, except in cases of emergency. The stimulation is bound to be followed by corresponding relaxation.

KEEP YOUR ICE AXE WITH YOU. You may need it before you get home. In conclusion, remember that, in the words of a famous climber,

"He who climbs and comes away,
"Will live to climb another day,
"While he who is in climbing slain
"Will never live to climb again."

It is not probable that St. Paul was familiar with the sport of mountain climbing, but his words should be remembered by all climbers when he says "Look, therefore, carefully how you walk. Prove all things; hold fast to that which is good."

J. P. Forde.

THE FIRST ASCENT AND TRAVERSE OF THE TRUE MT. SCHAFFER.

I spent a week early in August, 1909, at the annual camp of the Canadian Alpine Club at Lake O'Hara enjoying that incomparable spot and having some good climbs. Even the charm of Lake Louise was not sufficient to prevent a return thither after the camp was broken, and so, with hopes of finding something eatable left Mr. W. Symmes Richardson, of New York, and I again sought that spot, which is so centrally located for many good climbs.

The Fates were propitious and we were made very comfortable by Mr. Mitchell, the secretary of the Club, who was superintending the clearing up of the camp. Of course, we had our eyes on a good climb, one always does when knocking about in the Canadian Rockies, but the intervening days must be filled with smaller excursions.

It was on one of these latter that we set out for Mt. Schaffer. During the camp week I had scrambled up to where a cairn is perched on the northwestern and lower end of a spur of the mountain, named, quite erroneously on the sketch map, Mt. Schaffer, and could see no reason for calling this point the mountain as there is a tower at least a thousand feet higher towards Mt. Biddle. From the valley the true summit is not noticeable and, until one has been well up on the face of either Ringrose or Hungabee, the mass appears as a sloping spur of Mt. Biddle.

Three years previously Mr. Richardson had photographed this peak from high on Mt. Ringrose and was aware of a considerable tower cut off sharply on both sides from the main arête and it was for this that we bent our energies. We soon came to a second cairn further up on the arête marking a spot reached by a party from the club a few days before. Here we were completely cut off by a deep notch rendering further progress impossible without descending well toward Lake McArthur. Having done this we began the ascent of the main peak.

An interesting bit of rock work, quite comparable to the Mitre, led us to the apparently untrodden summit, from which we had the wonderful views here obtainable on a clear day. The three towers of Goodsir loomed up above all else to the southwest offering a challenge, which we later accepted. It seemed as if we could almost touch the black cirque of Biddle, while Hungabee and Ringrose were superb.

After building a stone-man we descended the face towards Mt. Biddle until a vertical wall blocked our way. Apparently the only way down was by a seventy foot chimney which, on account of the rottenness of the rock, was taken rather slowly but without difficulty. A glorious glissade down a couloir soon brought us to the Biddle Glacier and the rest was easy.

MALCOLM GODDARD.

THE ALTITUDE OF MOUNT HUASCARAN.

In 1908 Miss A. Peck of U. S. A. claimed to have ascended the north, lower summit of Mt. Huascaran in Peru. She made no instrumental observations above what she considered to be an altitude of 5,975 metres, 19,600 feet, but, from eye-estimates only, asserted that this peak had a height of at least 7,317 metres, 24,000 feet, and was thus the highest mountain of South America.

Believing Aconcagua to be the highest Andean peak, and furthermore to test the truth of these assertions, I decided to have a careful detailed triangulation made of the two summits of Mt. Huascaran. Through the assistance of Messrs. Fr. Schrader and Henri Vallot acting for the Société Générale d'Études et de Travaux Topographiques of Paris, an expedition was sent to Peru for me under the direction of M. de Larminat to effect this purpose.

Assisted by the Peruvian Government and favourable weather M. de Larminat and his assistants were able to carry out this work successfully between August and November 1909.

A base 1,600 metres, 5,248 feet, long was measured in the Rio Santa Valley in the Black Cordillera at an altitude of 3,800 metres, 12,464 feet. This base was measured by means of a 50 metre, 164 feet tape of Invar metal. From two stations, one at either end of this base, and from two others, the positions and altitudes of which were determined by trigonometrical measurements from them, that is from four stations in all, the positions and relative altitudes of the two summits of Huascaran were fixed by azimuthal and zenithal angles taken by theodolite.

In order to ascertain the true height of these stations above average sea-level a progressive levelling was conducted from the highest station, called the Garganta Signal, down along the mule-path leading from Yungay by way of Quillo to the sea at the port of Casma.

The Garganta Signal is higher than the col where the path between Yungay and Casma reaches its highest point. The difference in height between these two was ascertained by triangulation from the Garganta Signal to be 159 metres, 521.5 feet. From the col down to sea-level at the port of Casma the levelling was performed by means of the tacheometer. The altitude of the Garganta Signal being thus established, it was an easy matter to fix the altitude of the other three stations, from which the triangulation of the summits was made.

From two of these stations from which it was visible, the altitude of the church tower at Yungay was also established at 2,568 metres, 8,432 feet.

The average sea-level was determined by four double observations of two water-marks made at intervals of six hours ten minutes between each. The agreement of these was satisfactory owing to

the small amplitude of the tide at Casma, and also to the fortunate circumstances that the observations were made at time of neap tide.

The results of these measurements show the height of the north peak of Huasearan to be 6,650 meters, 21,812 feet, and the height of the south peak 6,763 metres, 22,182 feet.

Fanny Bullock Workman.

17th Feb. 1910.

WINTER MOUNTAINEERING AT THE COAST.

In the past winter, although, naturally, little high mountaineering was done in the Rockies or Selkirks, a good deal of climbing in the Coast Range was accomplished from Vancouver by members of the A. C. C. and the Vancouver Mountaineering Club.

The mountains immediately to the north of the City, though not alpine in character, rise from the sea level to altitudes varying from 4500 to 7000 feet and in winter the snowfall above 4000 feet equals that in the Selkirks. The beauty of these hills with their rich forests and magnificent outlook over the lowlands, the sea and the everlasting snows about Mt. Garibaldi is even more varied if not so sublime as that of the higher ranges.

In winter especially they afford to the climber a splendid playground in which to become proficient in the use of the rope and ice-axe and to obtain an invaluable knowledge of snow conditions. The cornices, which often become very large on the exposed ridges and the avalanches which fall constantly in mild weather, form the chief dangers to the unwary.

During the winter of 1909-10 nearly all the peaks within a day and a half's march from Vancouver were ascended, the chief expedition being to the twin peaks known as the "Lions" (6500 feet). This is believed to have been the first attempt to climb them in winter and although they are sixteen miles from the city, six of which were disposed of on the preceding afternoon, the firm condition of the snow and a moonlit night enabled the party to complete the expedition in eighteen hours of steady going. Without ice-axes the hardness of the snow and the steepness of the final 1500 feet would have rendered the ascent impossible. An attempt by a second party failed through lack of them.

In the afternoon these slopes were descended by a series of splendid glissades which in ten minutes brought the party down what had taken two hours to ascend in the morning.

The outlook from the top was superb and although a fleecy blanket of fog covered the city and the flat country, Howe Sound lay far below quite clear of mist and sparkling in the sun.

On other climbs snow-shoes played an important part as the constant falls of snow seldom allowed a crust to remain long uncovered. Skis were also employed but did not prove so useful.

Much more climbing would be done if there were a few huts built at convenient places among the hills, for at present, it is only those capable of travelling far and fast who can reach the highest and most beautiful summits. But much activity is being shown and the next few years will, it is hoped, see the construction of these shelters.

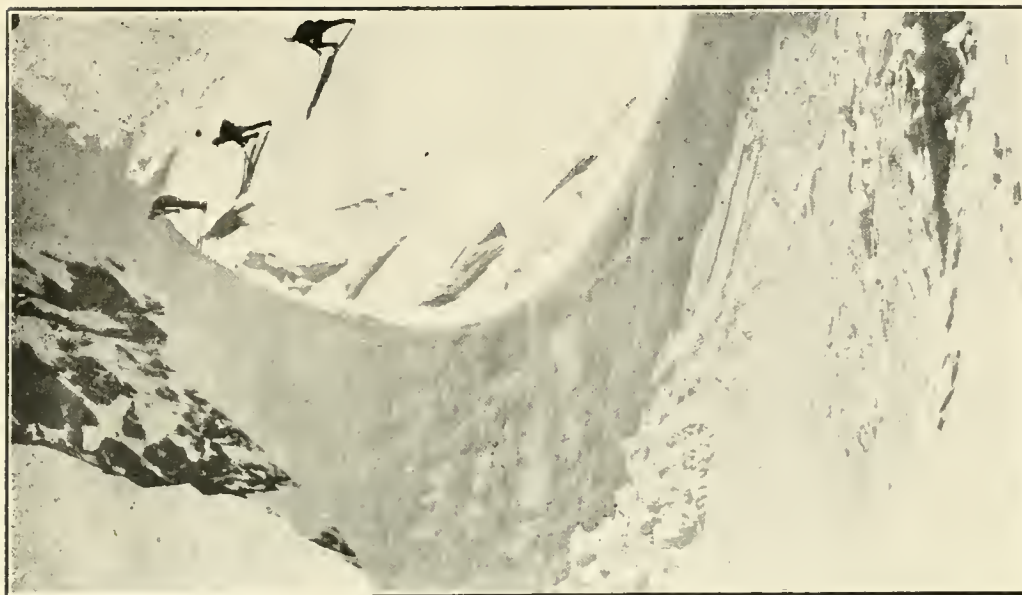
B. S. Darling



B. S. Darling, Photo

THE WESTERN LION

A. C. C. Climbing in Midwinter at Vancouver



B. S. Darling, Photo

THE EASTERN LION

A. C. C. Climbing in Midwinter at Vancouver

REVELSTOKE MOUNTAINEERING CLUB.

A copy of the annual report of the Revelstoke Mountaineering Club has been received from the Secretary, Mr. J. P. Forde. It shows considerable activity by that body.

During the summer months the Club, assisted by the City, built a substantial log chalet on Mt. Revelstoke and furnished it with a stove, cooking utensils, etc. The accommodation thus afforded is much appreciated by members spending holidays in camp on the mountain.

While no actual mountaineering was done by the Club as a body, individual members did a very creditable amount of high-class work as the following partial list shows:—

R. R. Copeland—First ascent of South Albert Peak; attempt on Mt. Sandford.

Rev. J. R. Robertson—Mts. Huber, Habel, Daly, Balfour and President.

W. A. Alldritt—Mts. Huber Habel, Balfour, South Albert Peak, and first ascent of North Albert Peak.

G. L. Haggren—First ascent of North Albert Peak, South Albert Peak.

J. P. Forde—First Ascent North Tower Goodsir, first ascent Mt. Victoria from south, second ascent Mt. Biddle, Mt. Mackenzie.

The membership of the Club is forty-eight, a number that will doubtless be largely augmented during the coming summer. A grant of one thousand dollars to be spent on building trails and shelters to assist the programme of the Club has been promised by the Minister of Public Works for the Province.

The report vigorously calls attention to the necessity of a reserve being placed upon the land and timber on Mt. Revelstoke and that steps be taken to prevent the unnecessary destruction of timber by camping parties.

CROWSNEST PASS

We have had our attention called to the fact that the origin of the name "Crowsnest Pass" is wrongly given on page 108 Vol. 1, No. 1, Canadian Alpine Journal. There it is attributed to Mr. M. Phillips, of Elko, B. C. Mr. Godsál, of Cowley, writes to us that the name is anterior to Mr. Phillips, and appears on Palliser's map, published in the fifties. Mr. Godsál says that he was informed by Lee, an old-timer married to an Indian wife, and therefore in touch with their traditions, that the Blackfeet Indians, who do not as a rule go near the mountains, made a slaughter of the Crow Indians near where the town of Frank now is, getting them into a "nest," or corralling them. The Rev. John McDougall, whose knowledge of the country is profound, says, however, "The Indians have always spoken of the 'Crowsnest Pass,' because on this trail through the mountains there was a nest which was occupied annually by crows." So the matter stands.

[The Canadian Alpine Journal does not hold itself responsible for the opinions of its contributors, but is always eager to verify their statements. The varying accounts of the origin of the name given above are interesting and also indicate the difficulties often experienced in arriving at the ultimate facts.—Editor.]

REVIEWS

TWO NOTABLE ALPINE BOOKS.

No more important contribution has been made to Himalayan literature, perhaps to the whole body of Alpine literature, than Mr. A. L. Mumm's interesting volume, "Five Months in the Himalaya." Though avowedly written for mountaineers, Mr. Mumm has succeeded in producing a book that will appeal to other classes of readers: such as those who are curious about distant places but who refuse to travel, or who, for various hard-and-fast reasons, are unable to go beyond their own province or country. As for mountaineers, they will read it with avidity. Though a mountain climber may not be a bookman in Lowell's sense or be known as a reading person at all, yet he reads alpine books, and gathers a shelf of them as he is able. Out of one such volume, there may be mountaineering issues beyond computation. The "five-foot-shelf," recommended by Harvard's Ex-President, is not complete without at least one volume representing this branch of modern English Literature, which is indeed a debtor to mountaineering.

"Five Months in the Himalaya" is a record of three months and more spent in the unknown Districts of Garhwal and Kumaon in the very heart of the Himalaya; and of six weeks in Kashmir. The party, an eminent one in alpine circles, consisted of Dr. T. G. Longstaff, Major the Hon. C. G. Bruce, Mr. A. L. Mumm and three notable guides, one being Moritz Inderbinen who accompanied Mr. Mumm to the A. C. C. Camp and later to Mt. Robson, last summer. Indeed, in the Himalayan expedition Inderbinen was "a personal luxury." He is a type of the craft to be perpetuated, if that be possible, in these growing democratic times; his devotion to his master is of the strong, deep feudal sort, a devotion fast disappearing among the serving class. In this book he appears and reappears, both in the text and in the beautiful photographs. "Before I had finished photographing, Inderbinen appeared, following me like a careful hen after a missing chicken." And the master too, is always mindful of his guide. But you may look in vain through the whole seventy-five illustrations for a sign of the author other than the sign that he composed the picture and squeezed the bulb. His talent for self-effacement is only exceeded by his fine faculty of descriptive prose narrative and of simple though luminous Nature description. Mr. Mumm has undoubtedly a sense of the morality of the Nature passage. No descriptive writing is quite so difficult or so fraught with the temptation of the "purple patch" as that of alpine description. "O, the little more, and how much it is," of the ridiculous. A horror of this, I feel sure, is as a stimulus to that fine and beautiful restraint which marks the descriptions of many great English alpine writers. Nothing so palls upon the genuine lover of mountains as fulsome writing about them; and he uses his vocabulary with a nice discretion, aiming to make a good, accurate, concrete

representation of the picture as he has seen it with his own eyes. This is true of Mr. Mumm, and he has succeeded in bringing before the reader his view of the panorama of the upper Himalayan world. Here is a little bit of description in the narrative that shows a scene with striking accuracy as the accompanying illustration bears witness. Before seeing the photogravure, the whole scene was as plain to my inward eye as our own Ten Peaks above Moraine Lake: "I was particularly interested in a beautiful semi-circular bay which I nicknamed the Aiguille Cirque, and which positively bristled with dark spires and pinnacles; a glacier descended at an extremely steep angle down the middle of them, and, spreading over the floor of the bay, joined the main ice-stream. We could here see some way further up the glacier which curved to the west, but it disappeared again round a corner to the right." He avoids the very appearance of "gush" resisting many opportunities and, we may be sure, temptations also, to do a passage of "fine writing." His first sudden vast view of Himalayan Peaks, from the high Kauri Pass is described: "Then a single stride, and I was gazing at a panorama that made one catch one's breath. The day was clear and cloudless, and a brilliant sun illumined every detail of a bewildering multitude of mountains of every variety of shape and outline, but all alike bold, steep and formidable, an army of Dents Blanches, Aiguilles Vertes, and Schreckhorns. This was the first overwhelming impression; after trying to absorb the general effect of the scene, one turned to the map for particulars * * * ; but then came a confused and confusing crowd of peaks, extending eastward in what seemed to be a solid mass, till they were brought to an end by the great trench of the Dhaulī sweeping round to the north. The valley of the Vishnu showed as a mere dark cleft, running up in the direction of Kamet, which stood commanding and dominant far away in the background." Nor does he forget to record Inderbinen's impression. "He too was intoxicated with the scene which he talked of for days afterwards. He was busily engaged, partly in sizing up the peaks in front of him, professionally, and coming to the conclusion that they were, one and all, uncommonly difficult, and partly in reconstructing his idea of the the Himalaya." I wish I could have heard Inderbinen's slow remark of amazement: "I did not know there were so many mountains in the world."

"Five Months in the Himalaya" will, for many years to come, be invaluable as a guide for climbers in the remote fastnesses of Garhwal and Kumaon. For the book is, first and last, a book of practical information. Its central point of interest is the conquest of the Trisul, a mountain about 23,406 ft. above sea, and the highest peak then attained by man. Of the three who had set their affections on that summit, only Dr. Longstaff attained, both Major Bruce and Mr. Mumm being unfit by reason of illness. One chapter is devoted to an "Attempt" in which Mr. Mumm reached a height of 20,000 feet. when camp was made on a field of snow in a hurricane. It is a vivid piece of narrative. Bruce, who was incapacitated by an abscess on the knee, had of necessity halted earlier in the journey. The final and successful attempt was made by Dr. Longstaff with the two alpine guides and one native. His story fills a chapter in his own words. Concerning any disputes about the highest ascents on record, Mr. Mumm has one sentence which too ambitious climbers would do well to ponder: "Longstaff lays no claim to

any record, and goes out of his way, like a good sportsman, to establish the record of a predecessor." Indeed that noble spirit is the spirit of the book throughout, which is one for climbers of the A. C. C. to own. It is to be hoped that Mr. Mummery will write another on the less known mountains and icefields of the Canadian Alps. His second visit will provide him with ample data.

"My Climbs in the Alps and Caucasus" by A. F. Mummery is also a book for all such as handle the ice-axe or hope to handle it. And for those who knew the author or even knew about him in the years of his splendid alpine achievements and enthusiasm, it surely is a volume to be handled with a certain tender affection. His name is not unknown to us in Canada who may not know his fame as a climber, Mt. Mummery being one of the giants first seen by Dr. Collie from the summit of Mt. Gordon in 1897 and so named by him. Ten years later it was conquered by a party of American students led by two Swiss guides. One, I think, was Edoard, Sr. Mr. Mummery with two Ghurkas, met his death somewhere on the upper part of Nanga Parbat, that sacred, magnificent and terrible mountain in the Himalaya, still defiant, but nevertheless doomed to defeat by some British climber, no doubt. Reading his inspiring pages, one feels that the conquest was his by right; and hopes, somehow, it may yet be discovered that the three reached the summit ere the mountain had slain them. Mrs. Mummery, who writes the Introduction to the last edition, quotes from the diary-letter which her husband wrote during the fatal expedition. The last words written to his wife were: "Tomorrow I cross a high pass with the Ghurkas to the Baldara Kiote Nullah. Hastings and Collie go round with the coolies and stores. If the N. W. side of Nanga is easy we may yet pull it off, but you will have a wire before this reaches you." And the comment, dignified, austere, and meagre, is great with grief: "This letter bears no date; it must, however, have been written on August 23rd. On August 24th, my husband and the Ghurkas were seen for the last time." It is a word worthy the widow of the mountaineer whose noble book closes with an utterance all too prophetic. He has been emphasizing the importance of long and patient and fearless practice, if a man would attain to great skill in climbing, and he points out some of the rewards: "He gains a knowledge of himself, a love of all that is most beautiful in Nature, and an outlet such as no other sport affords for the energies of youth; gains for which no price is, perhaps, too high. It is true the great ridges sometimes demand their sacrifice, but the mountaineer would hardly forego his worship though he knew himself to be the destined victim." Old John Muir, another of the alpine brotherhood, looking back over such dangers passed during exploration on rock and glacier, wrote not long ago: "I have sometimes felt that to meet one's fate on a noble mountain or in the heart of a glacier, would be blessed as compared with death from disease or from some shabby lowland accident."

This sacrifice on Naga Parbat would add a melancholy note to Mr. Mummery's book, did the text make it possible. But it is so robust, so courageous, so happy, so full of the wild joy of battle with the mighty forces of high mountains, with such vigorous love of life in it, that the morbid thought is far from you as you read. It is time that we cleared our minds of cant concerning mountaineering. "The love of living," cries Stevenson, "is stronger

in an Alpine climber roping over a peril." With perfect appropriation Mr. Mummery, himself, declares a true mountaineer to be "the noblest work of God." And the shade of Sir Walter would approve.

Mr. Mummery devotes eleven chapters to the Alps, two to the Caucasus and one, the last in the book, to a brilliant though in some respects, debatable essay on "the Pleasures and Penalties of Mountaineering." The beautiful photogravure plates and illustrations in the text are from various sources, including sketches and photographs of Signor Vittorio Sella, Mr. Hermann Woolley, Mr. Joseph Pennell and Miss Bristow. A very serious drawback to the book is the lack of an index, and if I am ever fortunate enough to own it I shall proceed to make one. Important as the illustrations are, so also is the index, whether the reader be student or reviewer. For such books as these become text-books for climbers and for lovers of the mountains who, by reason of age or poverty or frail health or other limitations, must be content to do their climbing in the pages of a book. Young stalwarts who have mastered the technique of this noblest of all the sports, spare your disdain. Heaven itself may reckon these as genuine mountaineers, as Rabbi Ben Ezra would have reckoned them.

On the first page Mr. Mummery recalls that sight of the Matterhorn shining in the stillness of a moonlit autumn night when the passion for great mountains first stirred within him, a boy of fifteen. And the reader knows at once he is in choice company. For one thing, here is a climber who seeks the same summit again and again, knowing well that one ascent is but an introduction to a high mountain. "In my heart of hearts I long for the slopes of which I know every wrinkle, and on which each crag awakens memories of mirth and laughter and of the friends of long ago. As a consequence of this terrible weakness, I have been no less than seven times on the top of the Matterhorn. I have sat on the summit with my wife when a lighted match would not flicker in the windless air, and I have been chased from its shattered crest and down the Italian ridge by the mad fury of thunder, lightning and whirling snow. Yet each memory has its own peculiar charm, and the wild music of the hurricane is hardly a less delight than the glories of a perfect day." The chapter is mainly devoted to the narrative of an ascent of the Matterhorn in 1879 by a new and difficult route, the Zmutt Ridge. Only one other known ascent was made by this ridge until 1894 when Mr. Mummery, with a young Swiss guide, accompanied the Duke of the Abruzzi and Dr. Norman Collie over the same route. Several days later, Miss Bristow who supplied the sketches and photographs mentioned, made the first descent by this route, led by the same young guide, Pollinger. Miss Bristow is manifestly a nimble and courageous climber. In another chapter she figures honourably in a troublesome ascent of the Grepon when it was in very bad condition, owing to a week of evil weather. She was the first lady to reach its summit, and the climb was one of the most difficult then made by Mr. Mummery. But he foresaw the day when the Grepon would go in the catalogue as a lady's mountain.

Space would fail me for even a reference to these separate chapters dealing with expeditions in the Alps and Caucasus. The last one, which is somewhat polemical, ought to be read by mountaineers everywhere. Only the knowing ones are capable of dis-

encing some of its points. Mr. Mummery propounds the theory and defends it skilfully that the rope is oftener a hindrance than a help. In fact it is dangerous, and he would deprecate the roping together of more than two. As the argument is necessarily empirical, and being of the unknown company which scales the rock and cuts the ice-stairway in imagination only, I am incompetent to form an opinion. I do not forget, however, that Mr. Mummery's capacity for mountaineering was the capacity of genius—and genius is a law unto itself. But I am getting into waters beyond my depth. A symposium on this subject would be of fruitful interest, and I hope the Editor of the *Journal* will take the suggestion. There are mountaineers in plenty, experienced and distinguished, who, for climbing's sake, would willingly contribute.

As I said, this climber was a genius; he gloried in the exercise, and in a very real sense was "adequate to himself," not with Goethe's stupendous calm but with the mountaineer's tumultuous joy. Yet his advice and testimony are against the habit of climbing alone. He knows whereof he speaks: solitary wanderings ought to be confined within narrow limits on any dangerous mountain. Ten chances to one, the solitary climber "will break his neck." For the duffer who would be carried to the mountain-top "nursed and coddled" by guides, he has a scorn that is all but invective: " * * * a thing that is pushed and hustled up peaks by Swiss peasants, and which is so wholly unable to take care of itself that it cannot be trusted to sit on a crag unroped." On the other hand, to the worthy aspirant, he gives the sober word of caution. Falling into a crevasse he regards as pure carelessness, and he indulges in some fine irony over this form of accident. I am afraid Mr. Mummery found no place for patience and sympathy with the timid novice or with the mere plodder. He was a brilliant climber who wrote his record brilliantly, yet with that rare charm which holds both novice and plodder in thrall.

E. P.

OFFICIAL SECTION

REPORT OF THE HON. SECRETARY.

Since the Annual Report of a year ago there is much to record concerning the transactions and operations of the Alpine Club.

Executive meetings were held at the camp in August; also, on November 3, November 10, (1909) January 31 and February 10 (1910). Owing to the great distances separating members of the Executive Committee, attendance was possible only for President, 2nd Vice-President, Hon. Treasurer, Secretary-Treasurer and one Adviser, all residing in Calgary. And to these gentlemen, together with chairmen of special committees, who conducted the affairs of the Club, the remaining officers are deeply indebted. In addition to much routine business by which the machinery of the Club is kept in running order, the following proceedings are recorded: Resolutions to secure a lease of more land that the present holdings on which the Club House stands may be enlarged; to amend the constitution, which amendments were since carried by vote of the Club, and printed in the new hand book; that interest on Club House debentures should be paid by placing it to the credit of annual fees; that in view of the national and international value of the work of the Club and of its potential activities in geographical the geological science, the Federal Government be petitioned for an annual grant of \$3,000; that in future no Journals be sent to members in arrear for fees; that as soon as funds are available there should be added to the Club House such necessary equipments as eavetroughs, mosquito screens, stoop for kitchen door and floor on cellar; that \$100 be contributed to the heavy expenses incurred by the Rev. George B. Kinney in his exploration and conquest of Mt. Robson.

Most important in the revision of the constitution is the new section providing for an office involving the actual labour of managing the Club's steadily increasing business, an office subject to the Executive Board and whose tenure is unlimited. By the appointment to this office of the retiring President who is so eminently qualified both in head and heart for the position, there is every good prospect for a more rapid though still healthy expansion of the Club and of its operations in exploration and discovery in the Canadian Rocky Mountains system. Indeed, with a permanent director and a worthy annual grant from the Federal Government, exploration might soon be pushed as far west and north as Mt. Logan in the Yukon, the highest mountain in British North America and the ambition of some eminent mountaineers. Your secretary ventures to hope that the Federal authorities will make it possible for this great mountain and its range to be explored under the auspices of the national Alpine Club, that they will not permit its conquest to be counted as a fresh "bag" by some climber from foreign lands.

At this writing, the total membership is 523, but when the members gather in annual meeting, it will probably be considerably more. The grades now stand as follows: Honorary, 10; Associate 18; Life Active, 22; Ordinary Active, 276; Graduating, 172; Subscribing, 25. During our four years' existence, over 600 names have been enrolled; but owing to failure in qualifying, in paying annual fees and to other sufficient causes the list has been very considerably reduced. This process is necessary to the standing and growth of the Club. On the other hand, the list of applications is greater every year. It will be noted in the handbook that out of the 22 life members, nine are members of the English Alpine Club, besides five in the honorary, and two in the ordinary active list. And that members of the oldest and most conservative Alpine Club in the world should seek membership in the youngest and very rigidly democratic Club, is gratifying. For it shows a genuine and practical interest, not only in the mountaineering regions of Canada, but in the important work this Club is seeking to do. Also, we have warmly welcomed to our membership those good climbers of the newer American Alpine Club which stands for a strict prestige in mountaineering achievement.

With a constituency extending throughout the Dominion, below the Boundary and beyond the Seas, a method has been devised to secure the solidarity of so scattered a membership: namely, to appoint committees in centres where the local membership is large enough to warrant establishing a section of the Club. Vancouver took the initiative, and Calgary, Winnipeg, Toronto, New York and London (England) followed. The first-fruit of these committees was the simultaneous anniversary functions in the various centres, —dinner or reception as suited the circumstances of each section. It is proposed, where feasible, to conduct the business of the Club through the chairmen and secretaries of these committees. And the benefit of this method is obvious: a sustained active individual interest in the Club's affairs will ensue.

Your secretary would earnestly ask leave to halt a moment for a word concerning our financial obligations. There is still a small debt on the Club House, whose value as an asset is great. Many members purchased debentures by which the fund was raised and some of these debentures have been generously returned, thus providing the not inconsiderable nucleus of a sinking fund. But fully 320 members have done nothing whatever towards building or furnishing the Club House. That all might have the opportunity, the shares were fixed at \$10 each; and the debentures bear interest at six per cent. It is not right that the majority of Canadian members should suffer English and American members to pay while they pay nothing, especially when we remember that a constitution forbids a place on the Executive Board to both English and American. Nevertheless, some Canadian members have most liberally assumed the heavier financial responsibilities. But it is not well for any institution that these should be borne by a minority. Only where all, or all who can, take a financial part is there perfectly healthy growth. There is no need to labour this point. It is as true of Clubs as of Churches. It has been privately pointed out, over and over again, by members of this Club who are members of other sporting and social clubs that the annual fee is remarkably low, that it is not half as high as the fees in many clubs of less importance.

The aim in fixing it at five dollars was that the Alpine Club of Canada should be in no sense a rich man's club.

The meet of 1909, beginning on the 2nd and ending on the 9th of August, was the most successful of the whole series of successful meets which have been conducted by the President, nearly 200 persons being under canvas during the week. That it proved so was owing to three causes. First, the number of our early members becoming expert on ice and rock has increased; second, the camp was set up on a spacious meadow under the shadow of fully eight eligible mountains, according to the mountaineer's interpretation of the word, and contiguous to many interesting passes and lakes—the meadow itself having every advantage both of convenience and of beauty in stream and forest and glacier and mountain peak; third, and not least, was the presence of a group of British climbers—among them eminent mountaineers—who were a very great help in every day's climbing and in every evening's entertainment about the camp-fire. We cannot overrate the importance of the attendance of our British guests. Both in the day's work and in the evening's play, they gave our young mountaineers a fresh impetus and a new outlook. Their informing, inspiring and humorous speech, when night brought tired climbers around the blazing logs, will not be forgotten. "Twenty and thirty and forty years on," the youngest of us shall hark back to nights under the stars or in fitful storm on O'Hara meadow all around the camp-fire, so finely termed by a lady member, "the altar and hearthstone of the Club." One of the guests was so impressed with the mirth and fellowship of these nights that he has adapted for the camp-fire, an old Harrow song, "Forty Years On."

The expedition led by the President to the Yoho Valley, and the traverse of the Waputik Ice-field when seven mountains were climbed, has also added an interesting bit of data to the history of this Club; and the two expeditions to Mt. Robson, notably the successful capture of that long-defiant peak by the Rev. Geo. B. Kinney, his own third attempt. These enterprises which here call for references only, are adequately recorded elsewhere in the Journal.

In mountaineering it has been a prosperous year. Besides Mt. Robson, first ascents were made of Mts. Pinnacle, Ringrose, Glacier Peak, the North Tower of Goodsir, and Victoria by the Huber route; second ascents were made of Mts. Deltaform, Biddle, and the North Tower of Goodsir; second and third ascents of Hungabee; and more independent climbing of distinctly difficult mountains was accomplished in the season of 1909 than in any season since the Club was organized.. Another advance to be noted is the employment of an Austrian guide by the Club. And for the present season a second one has been brought over for the use of our own members. The Club has also its official outfitters and guides of the valleys—the Otto Brothers of Field, B. C., who are among the few outfitters left in the mountains, of the whole splendid corps of half a dozen years ago. Much might be said concerning the passing of the early type of Canadian guides of the lower altitudes. It is the intention of the Alpine Club to keep, if possible, these competent and trusty guides Otto, who are adapted by nature and by training to the business of outfitting and guiding. To them it has responsibilities other than commercial.

During the winter, the President made a tour in the interests of the Club, lecturing and showing his pictures of mountain landscape in Ottawa, Montreal, Kingston, Toronto, St. Thomas, Winnipeg and Regina. Mr. Wheeler was greeted everywhere with large audiences, indicating how an interest in mountaineering is growing in Canada.

Since the last Journal was issued the death has occurred of Mr. Hector G. Wheeler, brother of the President and Assistant to the Chief Mountaineer, an office held by him from the Club's inception. His death is a very great loss to the Club. As guide and man, Mr. Wheeler had the respect and affection of every one who came in touch with him. Strong and safe and ready, patient and kind and gentle, he left the memory of a good man, a rare and lovable spirit. On mountain or by camp-fire, none who knew him will forget.

The Alpine Club owes thanks to many, and especially to the retiring President for his zealous labour and supervision of its manifold affairs. Everyone knows it is to him a labour of love. And both in camp and Club House, the President's wife has been his true helpmeet as hostess, chaperon and altogether the "right arm and spoon and necessary of life." Space would fail to acknowledge all gifts and all kindness from many generous hands.

To the Legislature of Alberta and the Legislature of British Columbia, our gratitude is deep for grants amounting to \$1,000 each. To the Department of the Interior for permission for the President and Vice-President Bridgland to attend the 1909 camp of Lake O'Hara. To the C. P. R. Company for special rates on the railway and at hotels; and for the liberal loan of their Swiss guides, our old and trusted friends, Edouard and Gottfried Feuz.

And finally, your secretary, in concluding the last annual report which it will be her pleasant duty to write, would add a personal note. Much delicate consideration has been shown her by her colleagues; her joy in association with the executive work of the Club has been genuine; and her interest in the Alpine Club of Canada will be abiding.

Respectfully submitted,

Elizabeth Parker.

REPORT OF LIBRARIAN.

Since the erection of the handsome Club House at Banff, the Club's library has a permanent and roomy home. There are but eighty-five volumes on the shelves—and we have many shelves. There are also some dozens of Journals and publications, including the exchanges of the Sierra Club, Alpine Club, Appalachian Club, Mazama Club, Scottish Mountaineering Club, French Alpine Club, Swiss Alpine Club, Austrian Alpine Club, Japanese Alpine Club, etc.

We have to thank Mr. A. L. Mumm for the gift of his valuable book "Five Months in the Himalaya." This book is packed with information and interesting photographs. Mr. A. M. Bartleet has presented us with a copy of "Scrambles Amongst the Alps," by Edward Whymper, without which no Alpine library is complete.

Mr. Godfrey Solly has kindly sent us two interesting books "Alpine Ascents and Adventures" by Shultz Wilson, and "Above the Snow Line" by Clinton Dent, and Dr. Bonar has sent us "Port Tarascon" and "Tartarin sur les Alpes," by A. Daudet.

Through the courtesey of the Survey of India, we have received a copy of "A Sketch of the Geography and Geology of the Himalaya Mountains."

We have Mr. Wilcox's "New Guide to the Lake Louise Region." Mrs. Wheeler has given us Parry's Journal and "Reminiscences Among the Rocks" by T. C. Weston. Prof. Macoun has sent his "Catalogue of Canadian Birds," and from the Department of Agriculture (Ottawa) we have "Farm Weeds of Canada." We are indebted to the Department of Mines for a complete set of "Reports of Geological Survey of Canada."

A book of excellent photographs of the O'Hara Camp was sent us by Mr. Freeborn, and there is a set of Mr. Harmon's camp photographs. There are also enlargements of photographs sent by Mr. Hermann Woolley, Mr. Howard Chapman and Prof. Walcott.

The Appalachian Club has most generously added the early rare volume of their "Appalachia" to the library. This completes the set—Vol. I to Vol. XII, inclusive, of which Vols. VI. to XI formed part of the nucleus of our library and were also the gift of the Appalachian Club.

Mr. Godfrey Darling has kindly placed in the library a number of standard novels.

Only two books have been purchased this year—Mummery's great book "My Climbs in the Alps and the Caucasus" and the Champlain Society's publication "The Logs of the Conquest of Canada," by Wood.

The Fell and Rock Climbing Club has been added to our list of exchanges.

Mr. Godfrey A. Solly has most generously presented the Club with a complete set of the Scottish Mountaineering Club Journal, which is becoming increasingly rare.

Mr. Fritz Beck has kindly presented us with 1908 and 1909 volumes of the "Jahrbuch Swiss Alpine Club."

Mr. Stanley L. Jones has given a most valuable book to the Club "Clarkson's Standard American Dictionary," and Mrs. Stanley

L. Jones has given "With the World's Great Travellers," a work of exceeding interest.

The following is the list of additions to the library since the 1909 report:—

		Presented by
Alpine Ascents and Adventures . . .	H. Shultz Wilson	Mr. Godfrey Solly
Above the Snow Line	Clinton Dent	Mr. Godfrey Solly
Serambles Amongst the Alps	Edward Whymper	Mr. A. M. Bartlett
Guide to the Lake Louise Region	Walter D. Wilcox	Mr. Wilcox
Parry's Journal.		Mrs. Wheeler
Reminiscences Among the Rocks .	T. C. Weston	Mrs. Wheeler
Five Months in the Himalaya . . .	A. L. Mumm	Mr. Mumm
Port Taraseon.	A. Daudet	Dr. Bonar
Tartarin sur les Alpes	A. Daudet	Dr. Bonar
A Sketch of the Geography and Geology of the Himalaya Mountains	Col. S. G. Burrard, F.R.S., H. H. Hayden, F. G. S.	
Farm Weeds of Canada	G. H. Clark	Dept of Agriculture
	James Fletcher	
Appalachia Vol. I to VI (inclusive)		Appalachian Club
Catalogue of Canadian Birds	John Macoun	John Macoun
	James Macoun	James Macoun
Spirit Lake.	Heming	F. Yeigh
My Climbs in the Alps and Caucasus	Mummery	By Purchase
The Logs of the Conquest of Canada	Wood	By Purchase
	(Champlain Society)	
Novels:—8 Volumes	Balzac	Mr. Darling
6 Volumes	Marion Crawford	Mr. Darling
4 Volumes	Sir Walter Scott	Mr. Darling
Album of O'Hara Camp Photographs		Mr. Freeborn
Scottish Mountaineering Club Journal Complete		Mr. Godfrey A. Solly
Annual Magazine Subject—Index 1909		Exchange
Jahrbuch Swiss Alpine Club 1908 and 1909		Fritz Beck
Clarkson's Standard American Dictionary		Stanley L. Jones
With the World's Great Travellers		Mrs. S. L. Jones

Respectfully submitted,
Jean Parker, Librarian.

REPORT OF 1909 CAMP.

Site of the Camp.

The fourth Annual Camp of the Alpine Club was held in one of the most beautiful, if not the most beautiful spot in the Canadian Rockies, in a little alpine meadow close by the glacier Lake O'Hara. It was an almost perfect location: a grassy open, a quarter of a mile long, hemmed in by forests of dark spruce, balsam, pine and fir with that very noticeable aromatic smell found in the woods near tree line. Above, all around, showed clear against the sky, the towering snow-clad heights of Victoria, Huber, Lefroy, Hungabee, Biddle, Odaray, and, at a greater distance, Stephen and Cathedral.

The meadow was intersected by a number of small streams which made the arrangement of the camp very easy. At the upper end lay a tiny pond, around which, in a wide crescent, were pitched, with military precision, the bell tents of the gentlemen's quarters. The pond was used for performing necessary ablutions and was nicknamed by the lady members "Adonis Pool."

To the south across a belt of trees lay an open glade, carpeted with heather and nicely sheltered. Here, in a symmetrical line, were pitched the tents of the ladies' quarters, with those for the lady guests in a little nook at the end of the row.

Still further south rose the large canopy under which were grouped the cook's quarters, the dining tables, the tea tent, the post office and order board, and furnished the place of general assembly. In the open in front of the canopy were the office and store tents and the magic fire circle where nightly gathered these worshippers of the hills.

Separated by another belt of trees were the tents of the gentlemen guests and across the meadow, opposite the assembly canopy, the camp of the "Men in Buckskin," the outfitters and packers of "The Trail." In odd nooks and corners along the edge of the forest might be seen the scattered white tents of those who preferred being under their own canvas.

During the day, the meadow, from end to end was a scene of vitality and exuberance of spirits. On every side magnificent spectacular views of steeply rising peaks, topped or faced with snow, met the eye. Hanging valleys, whose floors broke off in precipitous walls, rising one above the other, invited conjecture and subsequent exploration; an air of mystery was added by the scattered growth of trees that clung to every spur, projection and crack presenting a space not absolutely perpendicular. Delightful little lakes of which O'Hara was the chief, sparkled like jewels in their settings of forest and rock. Below the great peaks rose towers, minarets and aiguilles lending a fine idea of immensity to the masses behind them. It was a wonderfully impressive and attractive panorama and one that would remain imprinted on the pages of memory's scrap book for a life time.

This year the Club camp was under its own canvas, with the exception of one large tent at the railway base, which was loaned by J. P. Forde, Resident Engineer of the C.P.R. at Revelstoke, and was used for storing surplus baggage. In all, some sixty tents were in use.

Hector, a flag station on the Canadian Pacific was the railway base. The camp, seven and a half miles distant by pony trail, was reached by a delightful path up the valley of Cataract Creek flowing from Lake O'Hara. It wound beside a rushing, rock-walled torrent; then through an old brule, brilliant with summer flowers; across the debris of a huge rockfall; up and down through the cool green forest of spruce, balsam and fir, with glimpses of the swiftly flowing glacial stream now and again; along an old moraine and beside the blue-green Lake O'Hara, its surface broken by sparkling ripples, scintillating in the sunlight; and finally over a timbered hog's back to an open meadow and the city of white tents, looking as first seen like a glimpse of fairyland—all green and yellow, white and blue. The depot camp at Hector accommodated temporarily those arriving by train too late to reach camp the same day. It was well patronized and furnished a general base of supplies.

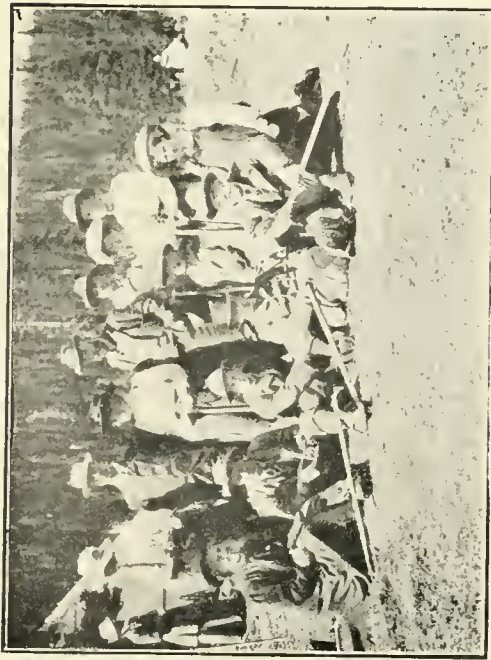
The following Alpine Clubs were represented: The Alpine Club, England, The Scottish Mountaineering Club, The Fell and Rock Mountaineering Club, The American Alpine Club, The Appalachian Mountain Club, The Alpine Club of the Netherlands.

Members of the following Learned Societies were present. The Royal Society, The Royal Geographical Society, American Geographical Society, Geological Society, Entomological Society, Entomological Society of America, Linnaean Society.

BRITISH GUESTS.

The Annual Meeting of the British Association for the Advancement of Science had been arranged to open at Winnipeg on the 25th of August. It was desired by the Alpine Club of Canada to extend such courtesies as might be in its power to visiting members who were interested in mountain regions from an alpine standpoint. An invitation was, therefore, conveyed through the Executive of the Association and the Executive of the Alpine Club, London. Twenty acceptances were received and the entertainment of these guests extended over a period of three weeks, during which time all attended at one time or another. First, they were received at the Club's headquarters at Banff, where the new Club House had just been opened. They arrived there on the 27th of July and remained until the 1st August when a move was made to the O'Hara Camp. The Camp closed on August 9th and on that day we started our guests upon a six-day expedition around the upper reaches of the Yoho Valley, a valley comprising in the minimum of space the maximum of alpine scenery. This expedition is referred to further on.

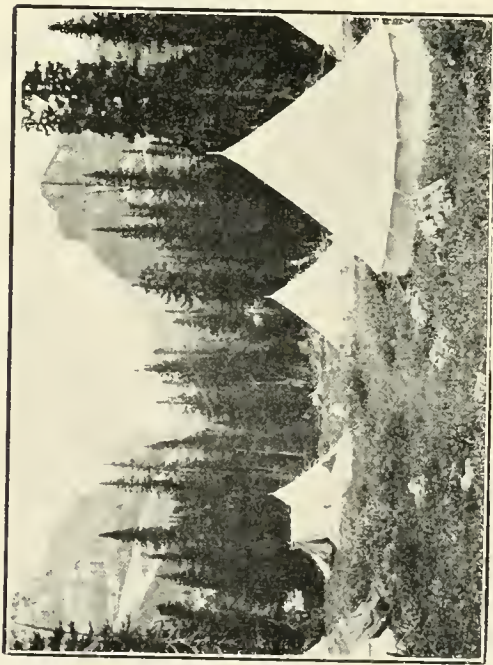
The guests who attended the Club House, the Camp at Lake O'Hara, or the subsequent six-day trip were, including a party of fourteen under the leadership of H. B. Dixon, of Manchester University, an old-time explorer and climber in the Canadian Rockies:—



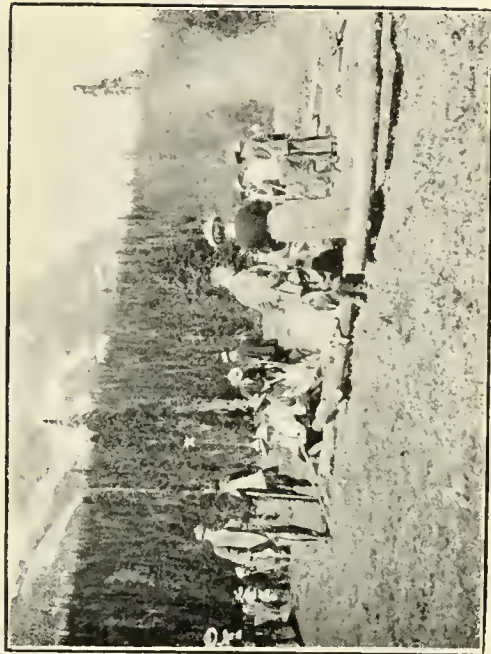
THE BRITISH PARTY



THE STORE TENT



THE LADIES' QUARTERS



THE CAMP FIRE

Olive Dixon, Photos
THE O'HARA CAMP

H. B. Dixon, F.R.S., Manchester
Mrs. Dixon, Manchester
Miss Phyllis Dixon, Manchester
Mrs. C. J. Spence, Cheadle
Godfrey Solly, Birkenhead
Mrs. Solly, Birkenhead
Miss Maclay, Hamilton
A. L. Mumm, London
Oscar Rohde, Birkenhead
L. S. Amery, London
G. Hastings, F.R.G.S., Bradford
E. F. Pilkington, Prestwich
Arthur H. Benson, F.R.C.S.I., Dublin
Mrs. Benson, Dublin
Edward Whymper, F.R.G.S., Teddington
E. F. M. MacCarthy, Birmingham
A. M. Bartlett, Birmingham
Tempest Anderson, F.R.G.S., F.G.S., York.
A. G. Priestly, London.
Miss M. Vaux, Philadelphia

THE CAMP FIRE.

One of the chief attractions of the camp—the altar of worship in fact—is the camp fire. It is lighted on the evening of the opening day and is not allowed to go out while the Camp lasts. During the day it smoulders, but when the graduating and other climbs are over, when the various expeditions have returned, when the evening meal has given full satisfaction and the sun is sinking behind the snow-clad giants in the west, then the camp-fire flares up and is soon a glowing centre of genial warmth and good fellowship. Seated around it in a wide circle may be found the entire population: guests, members, officials helpers, not even excepting “the mascot” of the camp—Baby Leggatt—the six months old daughter of Mrs. Leggatt, who was cook for the “Men in Buckskin,” the guides and other members of the system.

An entertainment committee provided a good programme for each evening and our guests kindly provided a chairman to act for each night; and well they did it. Under their skilful guidance, history of travel in distant lands, full of thrilling adventure and good stories—particularly lion stories,—exciting accounts of first ascents, songs, anecdotes, speeches and excellent recitations made the time fly all too swiftly. Each such evening seemed a fitting climax to a day of thrilling excitement, and the aches and pains and weariness of first climbs were forgotten under the influence of the magic circle, while the aromatic smoke rose into the thin frosty air and the stars twinkled aggressively above the uncertain of the grey and white peaks showing mystically in the bright moonlight.

One evening was made memorable by the address of the veteran, world-famed mountaineer, Edward Whymper; an address he had travelled more than ten thousand miles by land and sea to deliver. It is here quoted in full:—

"Friends, Canadians, Countrymen, lend me your ears, as Shakespeare said. They shall not be taken away from you, I only want to get hold of them for a few minutes.

"We meet here on the common ground of love of nature and love of freedom. Curiosity and interest have been expressed in the Old Country in respect to your proceedings and the progress of the club, and many in Europe, I am sure, would gladly have come here if their engagements would have permitted.

Let me read to you a few passages from letters which have come in. The first is from the Rev. W. A. B. Coolidge, who is American by birth and English from association. In regard to Alpine literature, he is considered to be the most learned and best informed "Man of the Time." He says, writing from Switzerland:

"You flatter me in imagining that anything I can write would be of any value as to the Canadian Rockies. I have never seen them. I am a 'statesman,' but did not climb any hills therein, though I was at school amid the White Mountains of New Hampshire. However, so far as I can judge, it is about time now that some one gathered together the threads of previous explorations in the Canadian Rockies, so as to show what still remains to be done, and to make known the claims of the fine mountain scenery which exists in the whole area.'

"There, ladies and gentlemen, is a nice little job for one of the youngest members of the Alpine Club of Canada. It will keep him well occupied all his lifetime.

"The next is from a man of science, from Professor Dr. Thomas George Bonney, who is to be brought forward shortly at Winnipeg as president of the British Association for next year. He has been a member of the A. C. for a clear fifty years, and was president from 1881 to 1884. This is what he says:

"For fully half a century my summer holidays have been spent among the mountains. To them I believe myself indebted for the health and strength which has enabled me to get through a considerable amount of hard work and to be still as vigorous as most men who have lived three-quarters of a century. (That is his age.) I have not been a lover of the Alps only from their invigoration or for the grandeur and beauty of their scenery. They have drawn me back and back again because they lead the dweller in the lowlands into fresh fields of scientific interest. From the snow-clad peaks and glaciers we can learn lessons which enable us to understand the action of ice and the effects of denudation in past ages of the earth's history very different from the present. From the record of the rocks mountains possess inexhaustible interest. The great hills speak in impressive tones. They are something like splendid and costly books, which lead us to admire the beauty of the illustrations while reading the story.'

"This is what the Bishop of Bristol, president of the Alpine Club from 1905 to 1908, says:—

"I wish I could go with you to those dear Canadian Alpinists. There are many marks of this present age, but we name two: (1) A rebellion against conventionalities and (2) an appreciation of the recuperative power of Nature. A chief charm of a mountain expedition is—we have done for the time with conventionalities, we are free children of Nature, let us go and seek our mother, and drink in

"A critic might say that this youth was foolish for starting out at such a late hour, and that it would be more in accordance with Truth and Nature if the poem commenced:

"The orb of day was rising fast."

"Don't let us be captious. Longfellow's meaning appears to be, let our motto be: 'Onwards and Upwards,' and that would be a good one for an Alpine Club.

"Ladies and gentlemen, live, live while you can. We're born to live, but born to die. Unite prudence with courage. Take heed to your steps lest you fall. Whatever you set your hands to do, do it with all your might. Act well your part, there all the honour lies.

"This, ladies and gentlemen, is the first, and it will be the last occasion on which I shall have the honour to speak to you. I came out from Europe expressly for this meeting, and tomorrow I start back. But, if unable to be with you in body, I shall, so long as I live, be with you in spirit, and wish you success and prosperity."

The camp-fire inspired L. S. Amery, of the London Times, author of "The Times History of the Boer War," to an adaptation of an old Harrow song, entitled "Forty Years On," to the bivouac of the Alpine Club of Canada.

ALPINE CLUB CAMP SONG.

By L. S. Amery.

Forty years on when afar and asunder,
 Parted are those who are singing to-day,
 When you look back, and, forgetfully wonder
 What you were like in your work and your play;
 Then, it may be, there will often come o'er you
 Glimpses of days when your pulses beat strong,
 Dreams of the mountains shall float them before you,
 Echoes of notes from our camp-fire song.

Chorus:

Follow up! Follow up! Follow up! Follow up!
 Hear it ringing again and again;
 'Tis the call of the heights to the plain,
 Follow up! Follow up!

Oh the great days in the distance enchanted,
 Days of fresh air in the snow and the sun;
 How we rejoiced as we toiled and we panted—
 Hardly believable forty years on.
 Then, you will say, not a feverish minute
 Strained the weak heart or the wavering knee;
 Was the day hard? We were bound to be in it,
 And neither the last nor the faintest were we.
 Follow up!



F. W. Freeborn, Photo

THE PRESIDENT'S ADDRESS
Annual Meeting, at O'Hara Camp



F. W. Freeborn, Photo

ANNUAL MEETING, AT O'HARA CAMP



F. W. Freeborn, Photo

THE HON. SECRETARY'S REPORT

Forty years on, growing older and older,
Shorter in wind as in memory long,
Feeble of foot and rheumatic of shoulder,
What will it help you that once you were strong?
God give us summits to stir our endeavour,
Peaks to be conquered in earnest or fun,
Grant we mount eagerly, fearlessly ever,
Twenty and thirty and forty years on.
Follow up!

Now the great peaks watching silently o'er us,
Sentinel guards of our camp and our land,
Bid you remember the morrow before us,
Bid us take thought for the task we've in hand;
So from the camp-fire we must be going;
Wishing every comrade a pleasant good-night;
Soon on the summits the dawn will be glowing
We must be there to salute her aright.
Follow up!

It was truly pleasant to see in that brilliant circle many well known faces from other lands, who had been present at previous camps, or were old visitors to the Canadian Rockies, noticeably:—Prof. H. C. Parker, of Columbia University; George Vaux, Jr., and Miss M. Vaux, of Philadelphia; F. W. Freeborn, of New York; Howard Palmer, of Harvard, and Dr. Goddard, of California.

With a few passing rain showers and one snow storm of some hours' duration the weather was perfect and under no other conditions could the exceptionally spectacular scenery have looked more entrancing.

Assistance was given by the Dominion Government through allowing the President and Mr. Bridgeland leave of absence from their surveys to superintend the camp and mountaineering, by the Alberta and British Columbia Governments, and by the Canadian Pacific Railway Company, who again loaned us two old reliable Swiss Guides, Edouard and Gottfried Feuz.

The Camp proved in every way the most successful and active yet held, and by far the best work was done. It broke up on August 9th and was immediately followed by the six-day trip around the Yoho Valley, of which a short description is given further on.

REPORT ON MOUNTAINEERING.

The climbing was under an able staff. M. P. Bridgeland was in charge assisted by E. O. Wheeler. Many volunteer active members did splendid service in assisting the graduating members to qualify and in taking charge of expeditions. Among these may be mentioned: Val. A. Fynn, J. P. Forde, D. N. McTavish, Rev. J. Robertson, Rev. A. M. Gordon, and P. D. McTavish. Several of our English guests good naturedly entered into the spirit of the Camp and its objects and lent us their experience and skill at climbing for the same purpose. Of these H. B. Dixon, Godfrey Solly, A. L. Mumm and E. F. Pilkington were prominent.

As professional guides we had our old standbys, Edouard and Gottfried Feuz, loaned to us through the courtesy and friendship of Mr. Hayter Reed, of the Canadian Pacific Railway Company. In addition we hired from the Company Ernest Feuz, brother to Edouard, who was now out for his first year in the Rockies. We had also our own guide, brought out from Austria shortly before the camp. Konrad Kain had had a large experience in the Dolomites, in the Tyrol and generally through the Swiss, French and Italian Alps as well as in Corsica and other places. Before the season was over he proved himself to be a first class man and became a great favorite. A. L. Mumm very kindly loaned his own guide, Moritz Inderbinen, on a number of occasions. Moritz has been with him on many expeditions in many parts of the world and particularly is known in connection with Mr. Mumm's expedition with Dr. Longstaff and Capt. Bruce in the Himalaya. He had now been brought out to assist in an intended attack on Mt. Robson to be made later by Mumm, Hastings and Amery. So it will be seen that the camp was well supplied with guides both professional and amateur. It needed them, however, and could scarcely supply the demand for strenuous work that was such a marked feature of the gathering.

It was originally intended to have Mts. Odaray (10,165 ft.) and Huber (11,041 ft.) the official graduating climbs, but on making an investigation of routes up Mt. Odaray two chimneys were discovered that would furnish serious difficulties for novices. It was, therefore decided to make Huber the official climb. This did not prevent a graduating climb being made on any other peak of sufficient altitude and of the required character.

Towards the camp Huber presented a bold rock face much broken by cliffs and far too steep to attempt an ascent. To reach the summit it was necessary to traverse along the west face and attack the mountain from the north and east. Here, the entire character changed and snow and ice predominated. At one point in the cliffs, at a lower altitude, it was considered advisable, though not absolutely necessary, to place a rope, which helped much those making their first climb.

Fifty-eight members graduated, as follows:—

MT. HUBER.

August 1st.

K. Campbell, M.D.
J. H. Boyce
G. M. Smith

August 2nd.

Miss R. Paterson
Miss D. Oldham
Miss M. Thomas
Miss R. Dow
F. M. Nicholson
E. N. Higinbotham
A. R. Hargreaves
Rev. Chas. Peck

August 3rd.

A. C. Graham
Miss L. DeBeck
Miss L. Hanafin
F. W. Godsal
Miss Ings
H. L. Pim
C. G. Arthur
Miss E. G. Crawford
B. S. Darling
J. B. Kay
Miss M. Baxter

August 5th

Miss A. Baxter
Miss D. Chevrier
Miss MacNab

August 6th.

Miss J. A. Gibson
A. F. Armistead
Miss McClinton
C. A. Lett, Jr.
W. B. McKechnie, M.D.
A. L. Kendall, M.D.
Mrs. Kendall
Miss Carter
B. McClelland
G. C. Battell
J. B. McLaren
Mrs. McLaren
W. H. Gunn
Miss McLean
Eric Ings
Rev. A. McA. Dallas

Rev. J. G. McKechnie
Miss E. Sinclair
Miss E. Johns
Rev. G. Howeroft

August 7th.

Miss Elizabeth Moore
H. A. Dowler
Miss Beth Halstead
Miss E. Mumford
W. A. Alldritt
Miss Holditch

August 9th

Henry H. Lyman
Miss M. Mumford
F. Creedy

MT. STEPHEN

Miss M. N. McKenzie
C. H. Gillis
W. H. Harrison

MT. ODARAY

Mrs. Spence

Other Climbs

A number of important climbs were made of the surrounding peaks while the camp was in session, viz:—

Second Ascent

MT. BIDDLE (10,876 ft.)

J. P. Forde, M. Goddard, J. J. Trorey, J. Watt
Guide: Gottfried Feuz

MT. ODARAY (10,165 ft.)

G. A. Solly, A. G. Priestly, A. R. Hargreaves, H. B. Dixon, Mrs. C. J. Spence, C. Hastings, E. F. Pilkington, V. A. Flynn, E. O. Wheeler.

HUNGABEE (11,447 ft.)

Second Ascent

V. A. Fynn, E. O. Wheeler

VICTORIA (11,355 ft.), Via Huber route

J. P. Forde, M. Goddard, A. Gordon, Mrs. A. H. MacCarthy.

MT. RINGROSE (10,741 ft.)

First Ascent

V. A. Fynn, E. F. Pilkington

GLACIER PEAK

First Ascent

V. A. Fynn, A. R. Hart, L. C. Wilson, C. A. Richardson.

All the foregoing climbs are described elsewhere in the Journal.

MINOR CLIMBS

Mt. Schaffer, Wiwaxy Peaks, South Peak of Mt. Odaray, Park Mt.

EXPEDITIONS

During the Paradise Valley Camp of 1907, a two day trip was organized by way of the Mitre Pass and Glacier, Lefroy Glacier, Victoria Glacier, Abbot Pass; stopping the night at Lake O'Hara; then via Opabin Glacier and Pass, Prospectors Valley, Wenkchemna Pass and Glacier, Wastash or Sentinel Passes and Horseshoe Glacier back to the camp—a round of nearly twenty miles of arduous work, but always of live interest, and exhibiting most beautiful and varied alpine scenery.

The same trip was on the daily programme for the O'Hara Camp, except that the half-way stop for the night was placed in Paradise Valley. It was made in different directions, some parties going via Abbot Pass and some via Opabin Pass. In all five parties made the circuit comprising thirty-seven gentlemen and seventeen ladies. In 1907 only three ladies attempted it.

MINOR EXPEDITIONS

There were a number of minor expeditions every day to Lake McArthur, Lake Ocesa, Opabin Pass and the Crystal Caves, all of which were well attended.

The Camp broke up on Monday 9th August. It was a record camp as to attendance and the amount of good work done. There were fully 150 people under canvas from the start to finish, while the maximum was 190. The steady attendance throughout, which was a new feature, made the camp a very lively one and kept the staff very fully employed.

THE SIX-DAY YOHO EXPEDITION.

A special expedition had been organized to enable our British guests to see a little more of the alpine features of the region. So, on August 9th, the party moved from Lake O'Hara to Hector Camp and got ready for a start.

There were thirty-three altogether, ten of whom were guests and the remainder officials, volunteers and guides. Of the guests E. F. M. MacCarthy and A. M. Bartleet joined us at Hector. Prof. Dixon and Mrs. Spence, Godfrey Solly, Mrs. Solly and Miss Maclay, Miss M. Vaux, Oscar Rohde and E. F. Pilkington came from the camp. Hastings, Mumm, and Amery had some days previously started for Mt. Robson with the intention of attempting an ascent.

A move was made from Hector camp about 2.30 on the afternoon of the 9th, over a blazed track through the woods, to the shores of Sherbrooke Lake. Now following the east shore around the lake and ascending by the torrent from the upper hanging valley, that valley was traversed and the first night's camp made near timber line in the valley leading to the Niles Pass. Ponies took the baggage and supplies thus far and then returned to meet us two days later near the icefall of the Yoho Glacier.

For the next two days, all food, bedding and outfit had to be carried on the backs of the Club's members who had volunteered for the purpose. The second day's route lay over the Niles Pass, the southern approach consisting of open grassy alps and rock debris, the northern a descent of steep snow slopes, which were negotiated by starting the heavier bundles and letting them go, then following ourselves by a series of swift glissades. Next ensued a tramp in single file across the Daly Glacier and camp was pitched for the second night just above the timber-line at the edge of the most northerly icefall of the Daly Glacier.

The route for the third day lay along the western slopes of Mt. Balfour and its outlying spur, Troltinder. A descent was ultimately made to the icefall of the Yoho Glacier, which was crossed by all except a few of the party who preferred to wade the torrent, and the third night spent in a delightful camp in the forest beside the regular pony trail, about half a mile from the icefall.

It had been pretty heavy work carrying supplies and outfit for thirty-three persons for two days and necessarily some discomfort was experienced by our visitors, but they were excellent sports and met all difficulties and mishaps with the most cheery good humour, lending assistance at every point as the occasion arose, and even carrying heavy loads, though quite unaccustomed to it. Indeed, they helped us more than they knew. During these two days some of our guests accompanied by members of the Club made ascents of Mts. Daly and Balfour, both peaks of the Great Divide.

At the third camp, ponies met us and for the remaining three days transport was an easy matter. The fourth night was spent at a charming camping ground in Waterfall Valley, beside the little lake near the trail. The fifth camp was in the Upper Yoho Valley and was probably the most attractive of all. During the day the move was made a number of members and a few of the visitors crossed the Wapta Icefield and made the ascent of Mts. Habel and McArthur, rejoining the camp in the Upper Yoho. The rest of the party tramped to Kiwetinok Lake and Pass, and had a look at the Van Horne range across the Amiskivi and Otterhead Valleys.

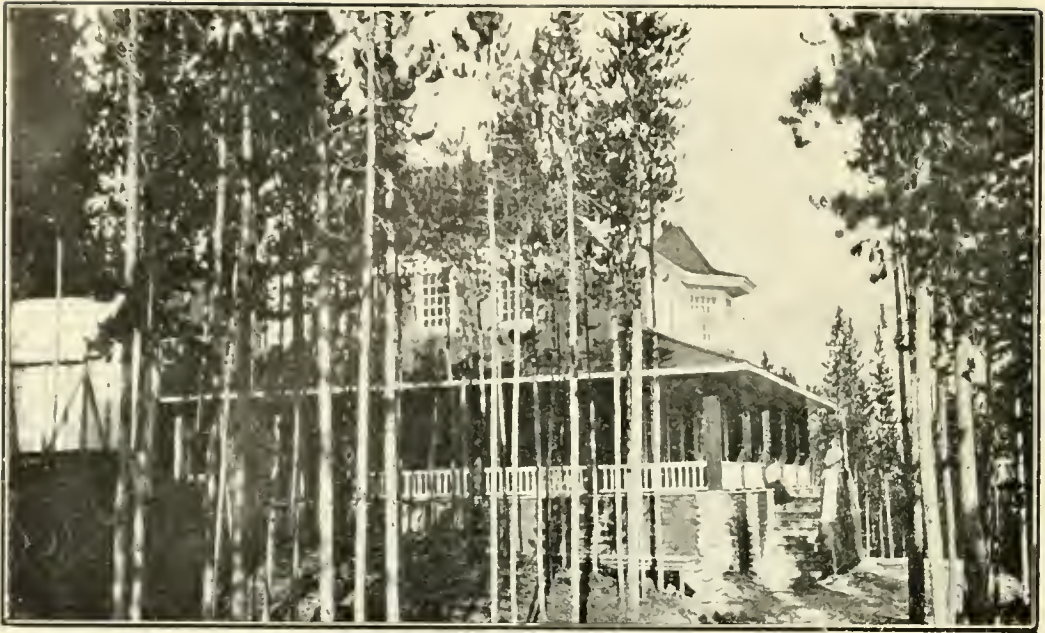
The fifth day, camp was moved across the alps above the upper trail to Summit (Yoho) Lake, near the crest of the Yoho Pass. About half the party reached this camping ground by a traverse of the President Range, crossing over the summits of the President and Vice-President.

At Summit Lake the party was joined by Dr. and Mrs. Benson, who had not accompanied the six-day expedition. One more jolly and lingering camp-fire together, one more night under the stars and then, on the sixth day, travelling easily, we crossed the Yoho Pass, and moraine delta of Emerald Lake, following the shore of the lake to the C.P.R. Chalet, where a civilized luncheon was thoroughly enjoyed. A drive through woods of lodge-pole pine over a good road landed us at Mt. Stephen House at the village of Field, and the expedition was over—no, not quite over, for our guests had planned a pleasant surprise and now become our hosts at a noble banquet, to our great delight and satisfaction. A more pleasing and kindly thought for a happy termination of a memorable expedition could not have been conceived.

The space at my disposal admits of but the merest sketch of what was really something of a feat, most happily carried out, thanks to the good temper, willingness for hard work and readiness to be pleased with everything, by everyone concerned. We found our guests right jolly good fellows, ladies included, and we could not have asked for better mountaineers or sportsmen. They have taught us much and we thank them most heartily for it.

In the pages of this number will be found a delightful sketch of the expedition entitled "Two Englishmen in the Yoho Valley," by MacCarthy and Bartleet, which does better justice in the way of a description than the writer has been able to do. In the February (1910) number of the *Alpine Journal* will also be found a capital description by Harold B. Dixon. This number may be obtained from Longmans Green and Co., 39 Paternoster Row, London, England; price 2/6

ARTHUR O. WHEELER
Chairman of Camp Committee.



C. H. Mitchell, Photo

THE CLUB HOUSE, BANFF



C. H. Mitchell, Photo

THE ASSEMBLY ROOM
and Vaux Fireplace

THE CLUB HOUSE

The Club House rises, a speck of colour, amid the pines of Sulphur Mountain, "Beautiful for situation." From the spacious front verandah one looks across towards Tunnel Mountain; to the north are the village of Banff and Cascade Mountain; the C.P.R. hotel hides the falls of the Bow, but over it, through the gap, Peechee and Inglismaldie stand bold against the sky, lovely in the after-glow of the sunset; the barren slopes of Rundle and the valley of the Spray fill the view to the South.

The main attraction of the interior of the house is the large assembly room, thirty feet square, finished in dark brown and furnished in mission style. In the centre of the western wall the great stone fireplace, erected in memory of the late Wm. S. Vaux, a lover of the mountains, gives distinction to the room. On the walls are various pictures of mountaineering scenes. On the same floor are the office and kitchen; from the hall a door opens into a large dining tent where meals are served to all who come at appointed times. Upstairs is a fine smoking room with sporting pictures upon the walls and next to it, commanding from its windows a view stretching from Mt. Edith to the valley of the Spray, is the library—a truly delightful room. On this floor also are two small rooms. Members sleep in little tent-houses scattered among the trees. From the rocks behind the house rises a spring of pure, cold water.

Ninety-six members stayed in the Club House last summer, and all hoped to come again. Thirty-four towns were represented in Canada and the United States, in England, Scotland and Ireland, and in far South Africa.

ART COMPETITION

The Judging Committee were Mrs. P. Burns, of Calgary, Alberta, Mrs. Dixon, of Manchester, England, and Mrs. Benson, of Dublin, Ireland.

In Class 1—Alpine Photographs—the first prize was awarded to Miss M. and Mr. George S. Vaux.

In Class 2—Alpine Flowers—there was only one exhibit. Mrs. Henshaw was awarded the prize for the high standard attained.

In Class 3—Alpine Scenes in oils—there were three entries. The first prize was awarded to Mrs. Blair Thomas.

In Class 4—Alpine scene in water colours—and in Class 5—Etching of Alpine scenes—there were no entries.

The Camp opened officially on August 2nd and closed on August 9th. The work of erection, in charge of E. O. Wheeler, son of the President, was begun two weeks before the opening day. During this time a special camp was in operation, open to receive members, but the only members taking advantage of the opportunity was Mr. Val. A. Fynn, of St. Louis, who turned to with a will and did most effective work in camp construction.

ATTENDANCE.

The attendance was greater than that of the previous year. In all, on hundred and ninety persons were placed under canvas. A special feature was the steady attendance from start to finish.

Our experience in previous years had been that the attendance fluctuated during the period, people coming and going, but at Lake O'Hara there were a hundred and fifty persons in camp from beginning to end. A synopsis of the attendance by Provinces, States and Countries is here given.

IN CANADA:

BRITISH COLUMBIA—Deer Park, Field, Golden, Kelowna, Revelstoke, Rossland, Vancouver, Victoria. ALBERTA—Banff, Calgary, Cowley, High River, Lethbridge, Medicine Hat, Millarville, Ponoka, Red Deer. SASKATCHEWAN—Prince Albert, Regina, Swift Current, Yellowgrass. MANITOBA—Winnipeg. ONTARIO—Kingston, Ottawa, Port Hope, Toronto, Woodstock. QUEBEC—Montreal.

FROM THE UNITED STATES OF AMERICA:

CALIFORNIA—Berkeley. ILLINOIS—Galesburg. INDIANA—Fairmont. MASSACHUSETTS—Boston. MISSOURI—St. Louis. NEW JERSEY—Summit. NEW YORK—Brooklyn, New York. PENNSYLVANIA—Philadelphia. S. DAKOTA—Sioux Falls.

FROM OVER SEAS:

ENGLAND—Birkenhead, Birmingham, Bradford, Cheadle, Haselmere, London, Manchester, Oxford, Prestwich, Teddington, York. IRELAND—Black Rock, Dublin. SCOTLAND—Hamilton. AUSTRIA—Vienna. HOLLAND—Rotterdam. SWITZERLAND—Interlaken, Zermatt.

STATEMENT OF TREASURER.

From July 1st, 1909 to May 31st, 1910.

Receipts.

Balance on hand July 1st, 1909	\$1,840.21
Fees—Associate members	\$ 372.25
Active—Life	689.50
Active—Ordinary	1,270.76
Graduating	207.40
Subscribing	36.00
	<hr/>
	2,575.91
Club House Accommodation	715.47
Camp Account	2,082.32
Journals	236.75
Ribbon	26.62
Ice Axes	221.50
Library	1.85
Piano	74.00
Interest	19.23
Club House—O. Rohde	\$ 15.00
Mrs. Solly	15.00
Mrs. Leigh	5.00
	<hr/>
	35.00
Total	<hr/>
	\$7,828.86

Disbursements.

Camp Account	\$2,509.39
Ice Axes	285.80
Club House Building	295.26
Club House Camp & Supplies	906.72
Building Club House camp and teaming	526.18
Club House Furniture	530.65
Printing and Stationery	152.28
Journal	710.91
Postage and telegrams	50.75
Wages	1,160.25
Photos sold by Club	4.50
Insurance	196.00
Piano	74.00
Ribbon	28.66
Library	17.52
Grant to Rev. G. Kinney	100.00
Transfer C. E. Peck to Building Fund	10.00
Transfer to Building Fund (O. Rohde, \$15; Mrs. Solly, \$15; Mrs. Leigh, \$5.)	35.00
Balance in Bank	229.99
Cash	5.00
	<hr/>
	234.99
Total	<hr/>
	7,828.86

C. W. ROWLEY, Hon. Treas.

RECEIPTS AND EXPENDITURES, O'HARA CAMP 1909.

Receipts.

Alberta Government	\$1,000.00
British Columbia Government	500.00
Board and Accommodation	1,691.50
Baggage, Hire of ponies	233.75
Sale Ice Axes and sundries	283.15
Sale, Auction	36.50
Employees Fund collected	215.40
Hiring guides	4.50
Sale of Provisions to Survey Party	55.57
Total	4,020.37

Expenditures.

Provisions	956.43
Wages	446.70
Outfit	821.44
Freight, etc.	173.80
Ice Axes	235.80
Alpenstocks	12.00
Horses	694.75
Canadian Pacific Railway for guides	90.00
Bonus for employees	214.80
Printing	35.00
Balance	339.65
Total	4,020.37

BANFF CLUB HOUSE BUILDING FUND.

Synopsis

Receipts.

Balance on hand July 1st, 1909	\$ 471.03
Subscriptions	1,998.62
Vaux Family	175.00
Interest	9.13
Notes discounted	4,971.05
Total	7,624.83

Disbursements.

Sundry cheques to contractors	\$3,203.50
Sundries	1.35
Payments on notes discounted	4,375.85
Balance in bank	9.13
Balance from General Fund—Mrs. Leigh	5.00
Mrs. Solly	15.00
O. Rohde	15.00
	44.13
Total	\$7,624.83

C. W. ROWLEY, Hon. Treas.

BUILDING FUND.

J. H. Alexander	37.50
A. F. Armistead	20.00
G. Arthur	20.00
*Mrs. A. H. Benson	15.00
Dr. Bonar	30.10
J. F. Boyce	50.15
*F. C. Brown	20.00
Mrs. P. Burns	50.00
R. B. Cochrane	10.00
C. H. Copeland	10.00
Miss W. J. Creech	15.00
N. Culp	20.00
Miss E. I. Cummins	10.00
A. M. Dallas	10.00
*B. S. Darling	5.00
R. J. Deachman	50.00
*Miss De Beck	5.00
† H. B. Dixon	50.00
Miss Dow	10.00
W. A. Duff	5.00
Miss F. M. Field	20.00
F. W. Freeborn	20.00
V. A. Fynn	50.00
G. A. Glines	50.00
F. W. Godsall	50.00
A. C. Graham	10.00
*W. H. Gunn	5.00
*Miss Hannafin	5.00
B. Harmon	10.00
† Mrs. Henshaw	10.00
E. N. Higinbotham	10.00
Miss C. M. Holditch	20.00
R. B. Hood	10.00
*G. Howeroft	5.00
*Mrs. G. Howeroft	5.00
J. C. Huffman	2.50
E. Humphreys	20.00
J. S. Hunt	25.00
W. G. Hunt	50.00
*E. Ings	5.00
*Miss E. Johns	5.00
† *S. L. Jones	40.00
J. B. Kay	100.00
A. L. Kendall	10.00
Mrs. Leigh	10.00
Miss M. Lennox	10.00
*C. A. Lett, Jr.	5.00
C. F. Lindmark	20.00
C. O. Main	5.00
Miss D. Maus	10.00
A. E. Miller	10.00
† *S. H. Mitchell	50.00
Miss E. Moore	10.00
T. Morrison	20.00
*A. L. Mumm	50.00

*Miss Maclay	15.00
*E. F. M. MacCarthy	24.33
Miss E. MacNab	10.25
Miss M. N. MacKenzie	30.00
C. B. McClelland	20.00
Miss McClinton	10.00
W. B. McKechnie	30.00
J. B. McLaren	30.00
Miss E. J. McLean	10.00
† P. D. McTavish	50.00
Miss Oldham	10.00
† *Mrs. E. Parker	10.00
H. Parker	50.00
† *Miss J. Parker	10.00
Miss B. L. Parlson	10.00
*Miss R. Paterson	5.00
J. D. Patterson	100.25
C. W. Peck	10.00
E. F. Pilkington	20.00
*H. L. Pim	5.00
J. T. Pollock	10.00
*Miss Raymond	25.00
A. L. Reading	5.00
C. A. Richardson	7.50
*O. Rohde	15.00
*C. W. Rowley	25.00
*Mrs. J. N. Shaw	5.00
Miss J. Sherman	10.00
*Mrs. Solly	15.00
*Mrs. Spence	51.04
E. L. T. Taylor	50.00
*Mrs. Thomas	5.00
*Miss Thomas	5.00
J. J. Trorey	10.00
John Watt	20.00
F. J. Webber	10.00
† *A. O. Wheeler	50.00
Mrs. J. A. Wilson	20.00
L. C. Wilson	10.00
F. Yeigh	10.00

Total 1,998.62

† Debentures presented to Club.

*Gift to Club.

Subscriptions Unpaid and Partially Paid.

Dr. G. A. Anderson	50.00
C. H. Gillis (3rd sub.)	50.00
E. A. Haggen	10.00
A. H. Hartevelt (2nd sub.)	25.00
J. C. Huffman (2nd sub.)	10.00
Dr. A. L. Kendall	20.00
Miss LeSueur	10.00
Dr. W. M. McKechnie	20.00
R. E. Plewman (2nd sub)	20.00

Gifts Towards Furnishing the Club House.

Mrs. P. Burns, 5 doz. each of knives, forks and spoons, double Majestic Range, large mirror; Miss Mollison, several dozen plates and dishes; Mrs. Rowley, 1 doz. sugar bowls and cream jugs, 1 pair portieres, lamps, bed and mattress; C. W. Rowley, pictures and frames, flags and hammock; Winnipeg members, library table and clock; sundry members, piano; Mrs. S. L. Jones, sofa pillow; Miss Gillis, pillow; Misses Adams and Springate, 1 doz. cups, saucers and plates; Mrs. Parker, 1 doz. plates and two brass trays; Miss Parker, candlesticks, plates and dishes; Mrs. J. B. McLaren, curtain; Mrs. Henshaw, 1 dozen cups and saucers; Miss E. Bailey, sugar bowl and cream jug; Miss E. Sinclair, cups and saucers; Dr. Mary Crawford, ink bottles and stationery; R. E. Burch, ink bottles; F. C. Brown, lamp and picture frames; A. O. Wheeler, pictures; Tom Wilson, picture; Miss A. E. Patteson, two water color pictures; H. G. Wheeler, two chairs and two tables; Mrs. H. J. Palmer, pictures, vases, etc.

J. D. Patterson	46.60
S. H. Mitchell	10.00
Miss A. L. Foote	5.00
J. N. Wallace	8.00
F. W. Freeborn	5.00
Mrs. Parker	4.00
Dr. M. Crawford	5.00
C. H. Gillis	5.00
Miss J. C. MacKay	2.00
Miss E. R. Smith	2.00
E. O. Wheeler	5.00
Miss A. E. Patterson	10.00

The money was used for furniture, dishes, teapots, waste baskets, pillows, towels, etc. The balance in hand is to be used for a kitchen porch this summer.

Memorials.

Fireplace in Assembly Room in memoriam William S. Vaux, Jr., by his family.

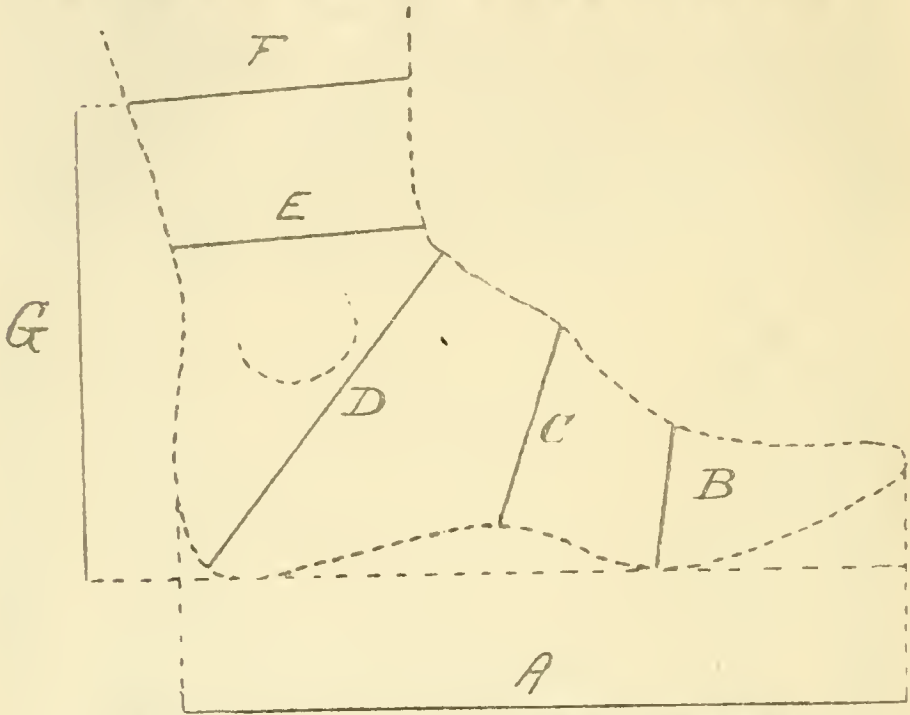
Grandfather's Clock in memoriam Hector G. Wheeler, by his relatives.

C. W. ROWLEY, Hon. Treas.

MARTIN CURSCHELLAS

SCHUHMACHER

ANDERMATT, SWITZERLAND



INSTRUCTIONS FOR MEASUREMENT

A = cm. B = cm. C = cm.
D = cm. E = cm. F = cm.
G = cm.

Name _____

Full Address _____

NOTES.—Write distinctly. Measure over mountain stockings you intend to wear. **Two** pairs should be worn. Take measurements when standing. Pull gently on tape when measuring. Check your measurements. Give dimensions in Centimeters. One inch = 2.54 Centimeters.

Centimeter measurement is frequently found on the reverse side of tape measures.

G
505
C3
v. 2

Canadian alpine journal

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY
